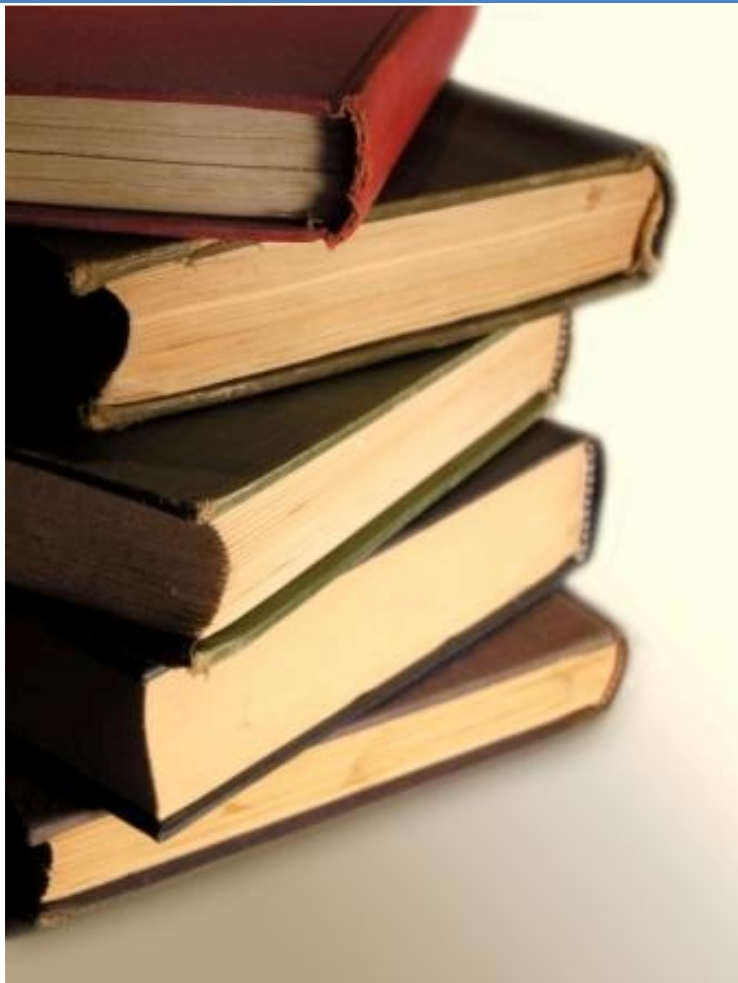


L2 Desktop - Workbook



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What makes a responsible learner?

- Responsible learners accept the idea that their own efforts are crucial to progress in learning and behave accordingly.
- Willing to cooperate with the facilitator and others in the learning group for everyone's benefit. Cooperation doesn't mean that they always obediently following instructions: they may ask about the purpose of activity first, or they may even come up with suggestion on how to improve an activity.
- Consciously monitor their own progress and make an effort to use available opportunities to their benefit, including activities in the session or any assignments given to them.

The Delegates' Goals and Responsibilities

Facilitators invest time and resources in delegates. Delegates should respect this time and use resources responsibly, keeping their facilitators informed about changing interests or other circumstances that could affect their work.

The delegates should keep in mind the following throughout the training session:

1. **Develop professional skills**— Attend and perform work as directed by the facilitator, maintain courteous and professional behavior, obey all lawful commands, conditions and obligations as stated in the employment contract.
2. **Develop Technical Skills**— Work towards achieving the competencies in the training session. Undertake and attend any training or assessment related to the training session, as instructed.
3. **Learn the 'business' of the process**—Understand standard operating procedures, time constraints, different processes to be followed (e.g escalation, call transfer, call opening, call closing etc).
4. **Establish credentials**—Understand criteria that will be used for judging performance and form the basis of recommendation. Do not waste, damage or injure the property, goods or business of the employer.

Note: Delegates are not supposed to use the workbook outside Iyogi premises. In case of loss, there will be a penalty as per the company guidelines.

Week 1

Week Objectives:

By the end of this week, you will learn:

Day-1

- Induction and HR Formalities

Day-2

Windows XP Overview

- Different Windows XP versions & editions
- What is Service Pack?
- Windows XP Service Packs
- Microsoft Windows XP Interface
- Linear & Logical Troubleshooting.
- Advantages of Linear & Logical Troubleshooting
- Silver Bullet Troubleshooting
- Information Gathering Day-2
- Windows XP Diagnostic & Troubleshooting Tools

Day-3

Clean & Upgrade Installation

- System requirements for Windows XP installation
- Different methods of Windows XP Installation
- Pre-requisites for Clean Installation
- Disk Partitions
- File System for Windows XP
- Different phases of clean installation process of Windows XP
- Windows Product Activation
- Difference between upgrade & clean installation
- Different upgrade paths available
- Windows Upgrade Advisor
- Upgrade Installation

Day-4

Windows XP Repair/In Place and Parallel Installation

- Parallel Installation of Windows XP
- Repair Installation of Windows XP

- Windows XP Installation/upgrade issues & Troubleshooting
 - Stop Errors
 - Black Screen Errors
 - Other Issues
- Hard Disk Technologies

Day-5

Windows XP Startup & Troubleshooting

- Windows XP boot process.
- Windows start-up files
- Advanced Boot Options
- How Windows Safe Mode differs from Normal Mode
- When to use Safe Mode to test a computer system
- How to proceed when a Safe Mode Test fails
- How to proceed after a successful Safe Mode Test
- Troubleshooting using Recovery Console
- Different troubleshooting scenarios

Day2: Windows XP Overview

Module Objectives:

By the end of this module you will understand:

- Different Windows XP versions & editions
- What is Service Pack?
- Windows XP Service Packs
- Microsoft Windows XP Interface
- Linear & Logical Troubleshooting.
- Advantages of Linear & Logical Troubleshooting
- Silver Bullet Troubleshooting.
- Information Gathering

Windows XP and Editions

Windows XP is a line of operating systems produced by Microsoft for use on personal computers, including home and business desktops, notebook computers, and media centers. Following are the different editions of Windows XP:

- **Windows XP Home Edition:** This version of Windows XP is targeted for Home Users.
- **Windows XP Professional Edition:** This version of Windows XP contains features like support for Windows Server domains and two physical processors and is targeted at power users, business and enterprise clients.
- **Windows XP 64 Bit Edition:** This version of Windows XP is for IA-64 (Itanium) processors and Windows XP Professional x64 Edition for x86-64.
- **Windows XP Tablet PC Edition:** This version of Windows XP is designed to run stylus applications built using the Tablet PC Platform.
- **Windows XP Media Center Edition:** This version of Windows XP has additional multimedia features enhancing the ability to record and watch TV shows, view DVD movies, and listen to music.

Service Pack

A service pack is a collection of updates, fixes and/or enhancements to a software program delivered in the form of a single installable package. There are three Service Packs released so far for Windows XP.

Service Pack 1 (SP1): It includes:

- Post-RTM security fixes and hot-fixes
- Compatibility Updates
- Optional .NET Framework Support
- Enabling technologies for new devices such as Tablet PCs
- A new Windows Messenger 4.7 version
- USB 2.0 support.

Service Pack 2 (SP2): It Includes:

- An enhanced firewall
- Improved Wi-Fi support, such as WPA encryption compatibility, with a wizard utility
- A pop-up ad blocker for Internet Explorer 6
- Bluetooth support

Service Pack 3 (SP3): It contains:

- Previously released performance, security, and stability updates
- Turns black hole router detection on by default
- Network Access Protection client
- Group Policy Support for Wired Network Adapters

- Credentials Security Service Provider
- Descriptive Security options in Group Policy/Local Security Policy user interface
- An updated version of the Microsoft Enhanced Cryptographic Provider Module
- Installing without requiring a product key during setup for retail and OEM versions



Check Your Understanding

1. List down the editions of Windows XP that have been released by Microsoft?
2. What is Service Pack?
3. In Which Service Pack, the support for Bluetooth was included?
4. Which Service Pack has the support for USB 2.0?

32 Bit V/s 64 Bit

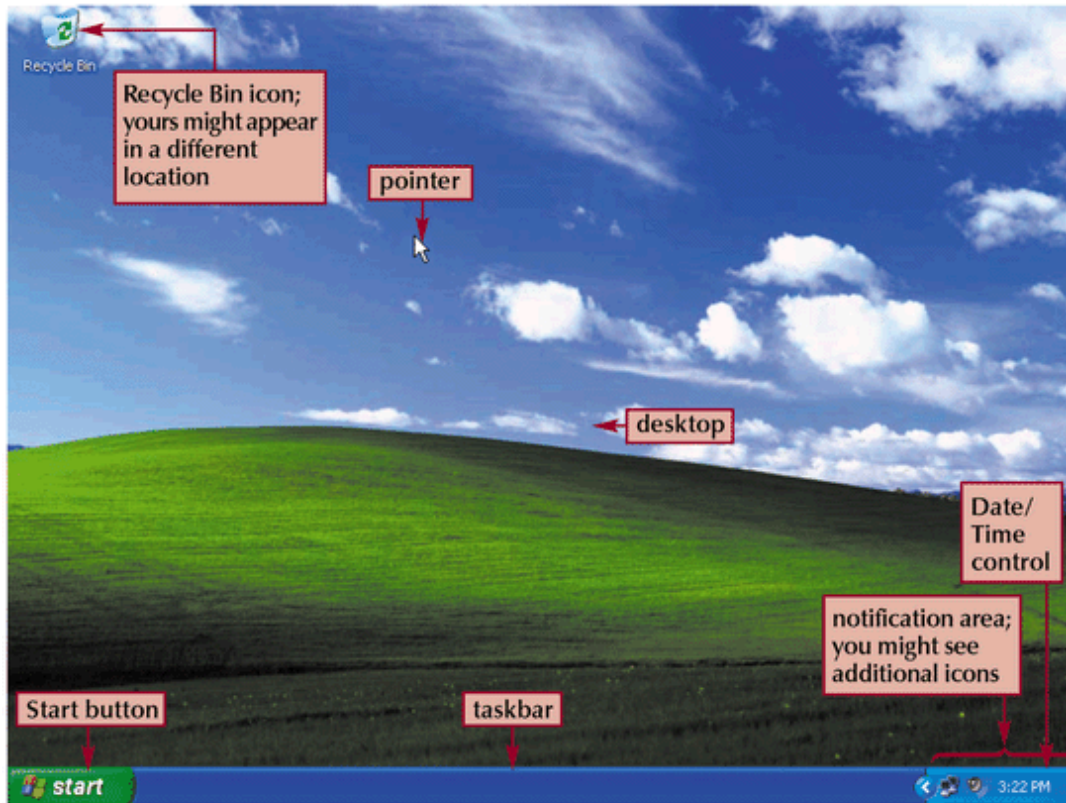
The terms 32-bit and 64-bit refer to the way a computer's processor (also called a CPU), handles information. The difference between 32 bit and 64 bit version is that

- The 64-bit version of Windows handles large amounts of random access memory (RAM) more effectively than a 32-bit system.
- The 64-bit version is faster in processing data as compared to 32-bit since it can process more data in one go.

Windows XP Interface

The elements of the Windows XP desktop are:

- Icon
- Pointer
- Desktop
- Date/Time Control
- Taskbar
- Start Button
- Notification Area



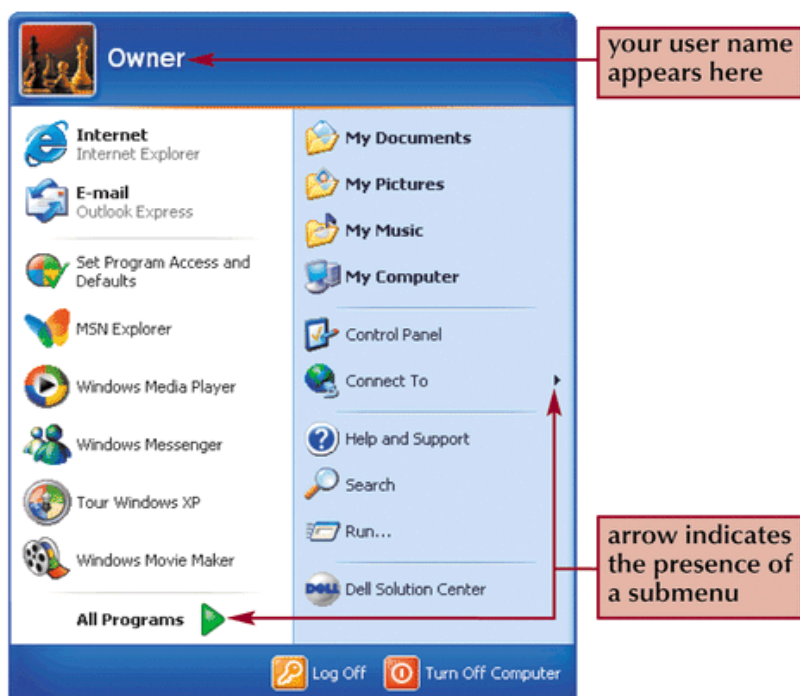
ScreenTips

Screen tips are the text that appears when the mouse pointer is positioned over certain objects and it displays the purpose or function of the object.



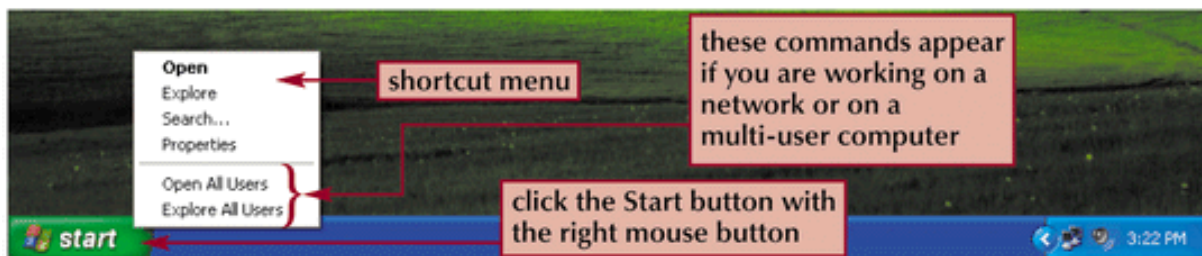
Start Menu

The new Start Menu of Windows XP has also changed substantially compared to previous versions. All other programs are accessed via the All Programs button. Placing less frequently used programs behind that button reduces the clutter that can result from applications being forced into the top level Start Menu.



Shortcut Menu

When the user clicks an object with the right mouse key, a shortcut menu (or context menu) pops up. This menu contains specialized commands and options for the object.

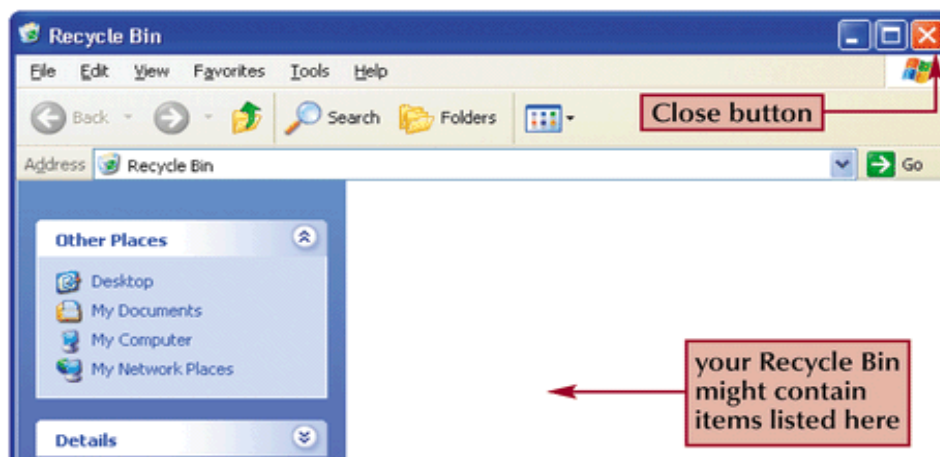


Recycle Bin

An icon on the Windows desktop that represents a directory where deleted files are temporarily stored. This enables you to retrieve files that you may have accidentally deleted.



In Order to open the recycle bin, you can double click on the icon.

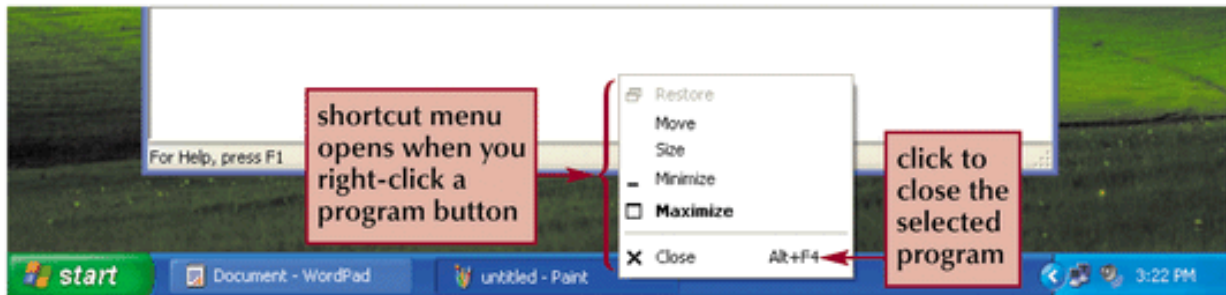


Closing Inactive Programs

In order to close the open programs, the user can use one of the following options:

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- The Close button on the title bar of the program window
- The shortcut menu associated with the program button on the taskbar



Check Your Understanding

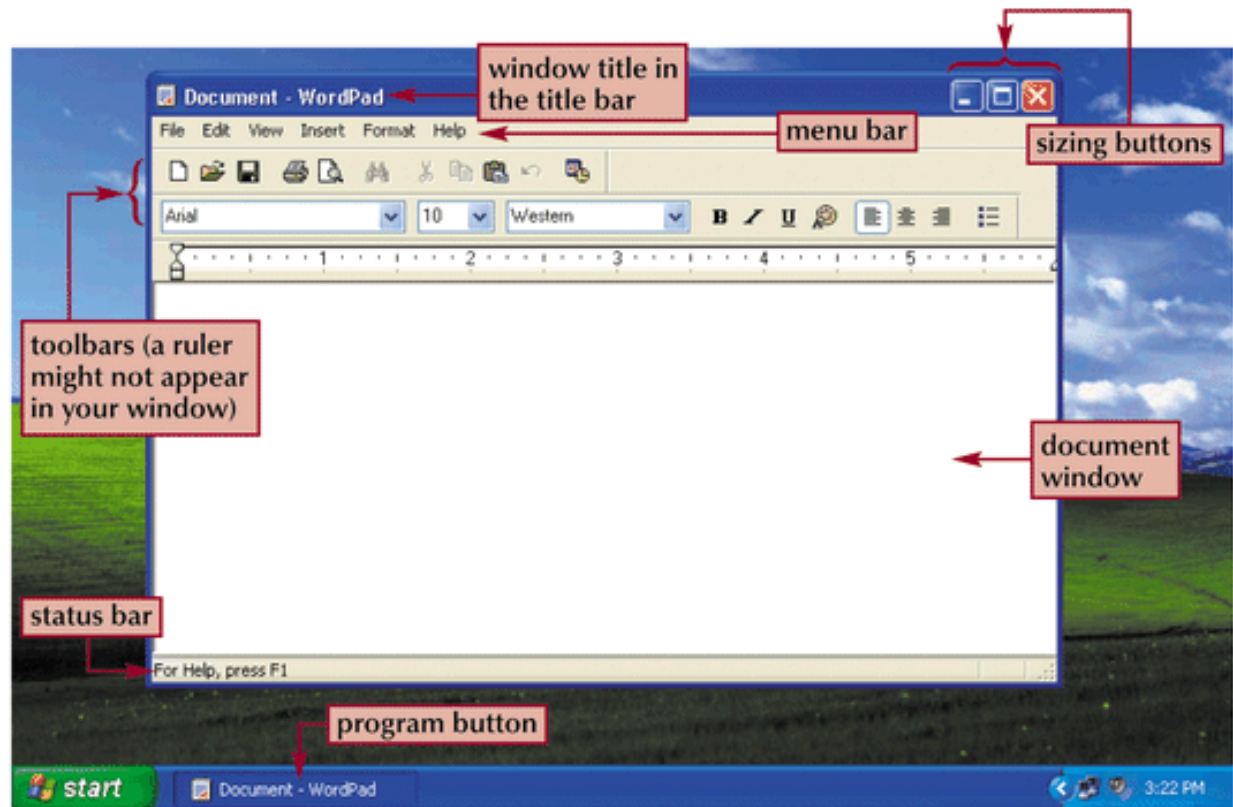
1. List down the key elements of the Windows XP Desktop.
2. Where is the notification area on Windows XP Desktop?
3. What are pinned items on Windows XP start menu?
4. What is a Shortcut Menu?

Anatomy of Window

Window is a rectangular area of the screen that may contain:

- Program
- Text
- Graphics
- Data

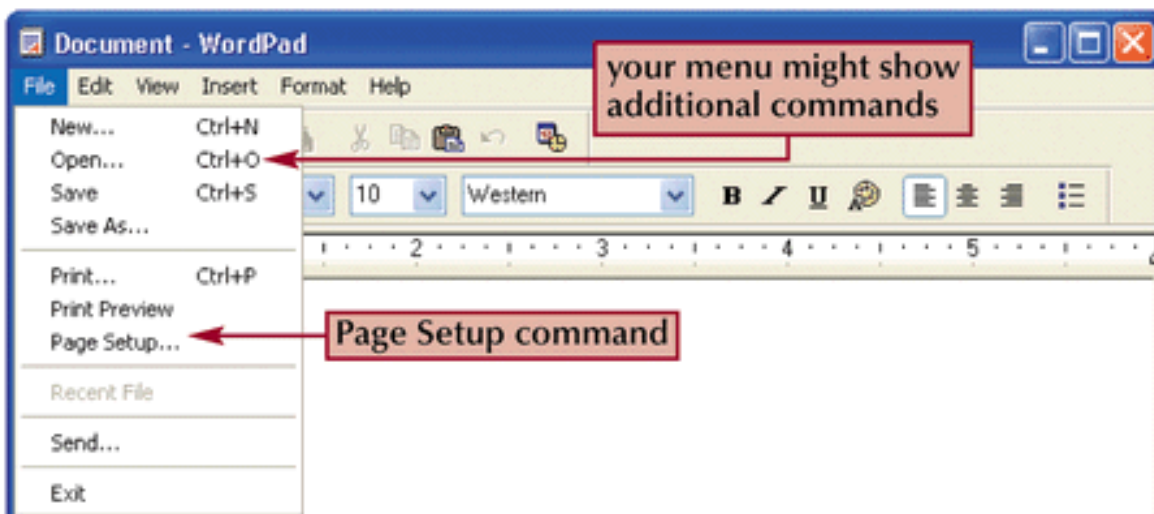
The window also has certain graphical or textual controls that are used for manipulating the windows or using the program.



Program Menus

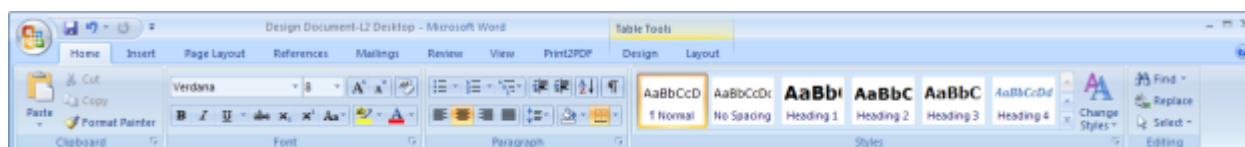
Menus organize a program's features and available functions. These menu options are available on the Menu Bar which is typically located at the top of the program window. The menu bar shows the name of the different menu options. The menu items of commands are the choices of the menu and they appear when the menu name is clicked. The possible actions when the menu name is clicked are:

- Immediately carry out the action
- Show submenus
- Ask the user for more information about the desired action



Toolbars

Toolbars in the program window provide one click access to frequently used commands. Toolbars have grouped buttons and they are organized by tasks. You can select a toolbar button by clicking it.

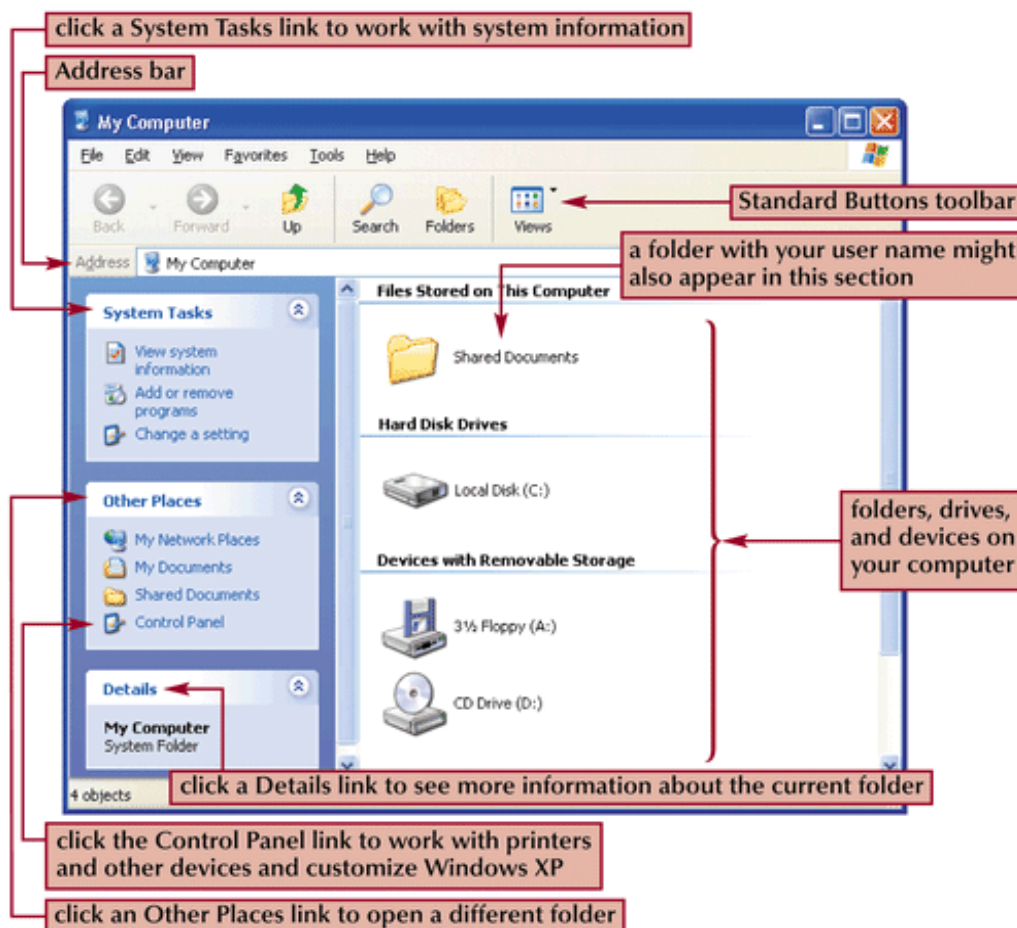


My Computer

My Computer allows the user to explore the contents of their computer drives as well as manage their computer files. In order to open My Computer, you can

1. Get to the Windows Desktop.
2. Double-click the My Computer icon

Once My Computer is open you'll see all available drives on your computer. For most users you'll only be concerned with the Local Disc (C:) drive. This is your hard disk drive and what all your files are stored on. Double-click this drive icon to open it and view of its contents.

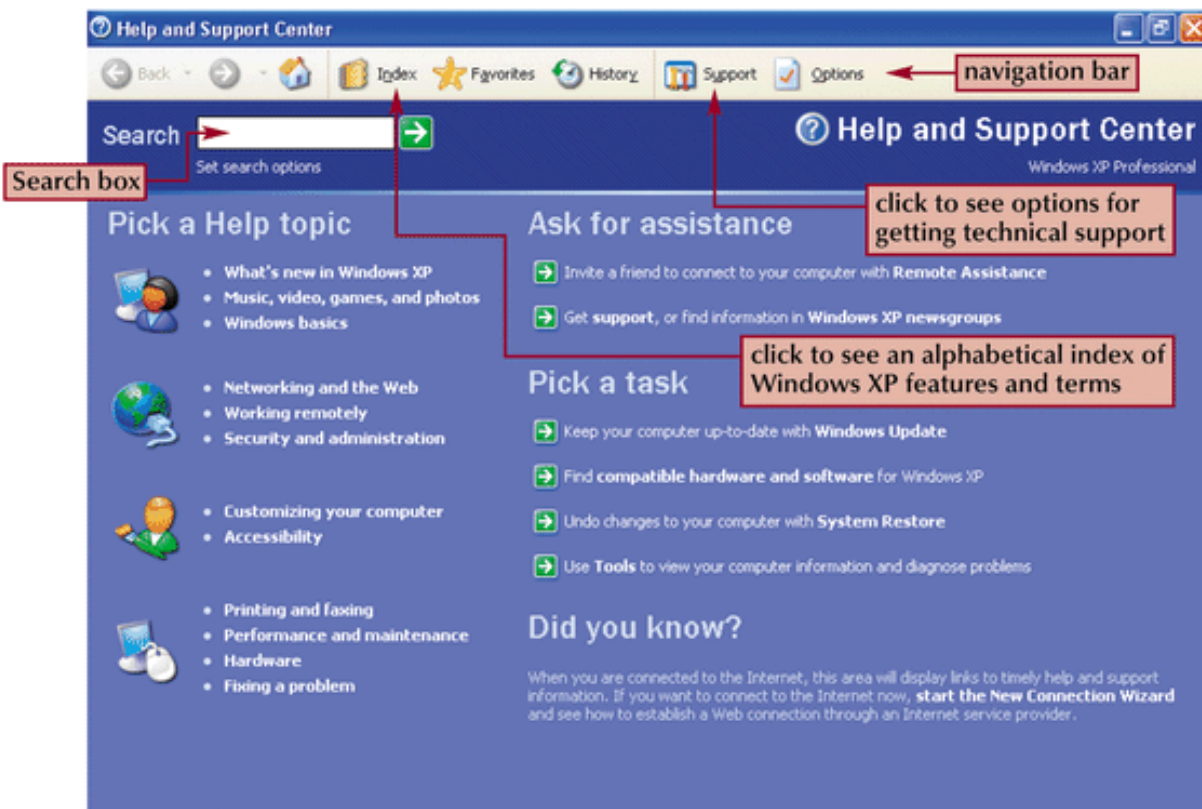


Help and Support Center

The Help and Support Center in the Windows® XP operating system represents a significant milestone in delivering a single resource for Online Help, support, tools, how to articles, and other resources. It's easy to get Help from an online Microsoft support professional, trade questions and answers with other Windows XP users on Windows newsgroups, or use Remote Assistance to have a friend, co-worker, or Helpdesk professional support you.

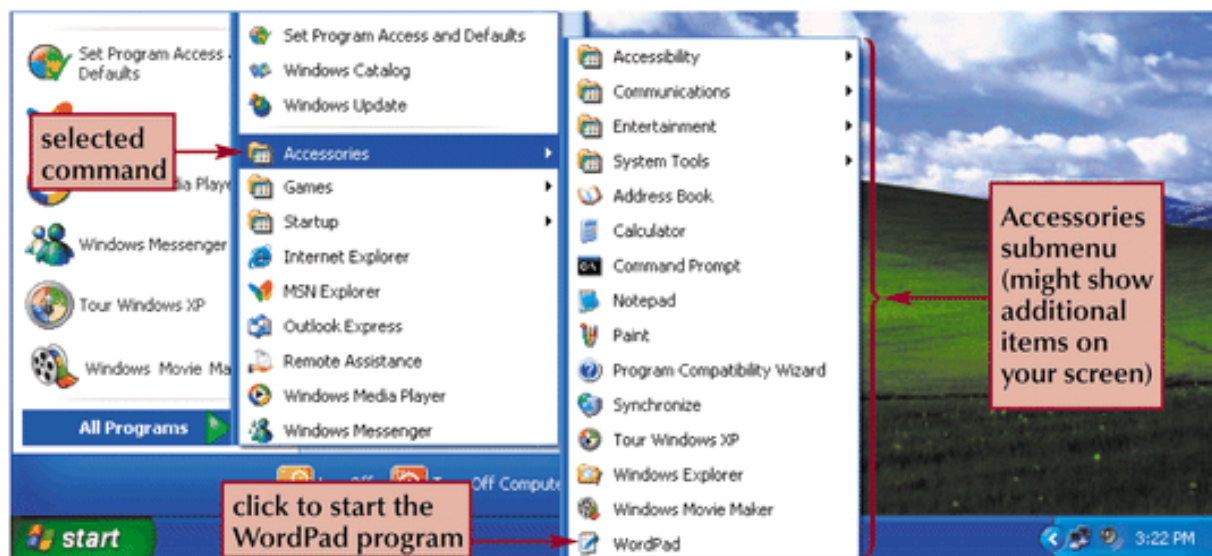
To open Help and Support:

- Click Start, and then click Help and Support.



Accessories

Windows XP provides several accessories, or applications, that you can use to help you in your work. These accessories are not full-featured programs, but they are useful for specific jobs in the Windows environment. Accessories include a calculator, a painting program, a word processor, a text editor, and Internet applications.





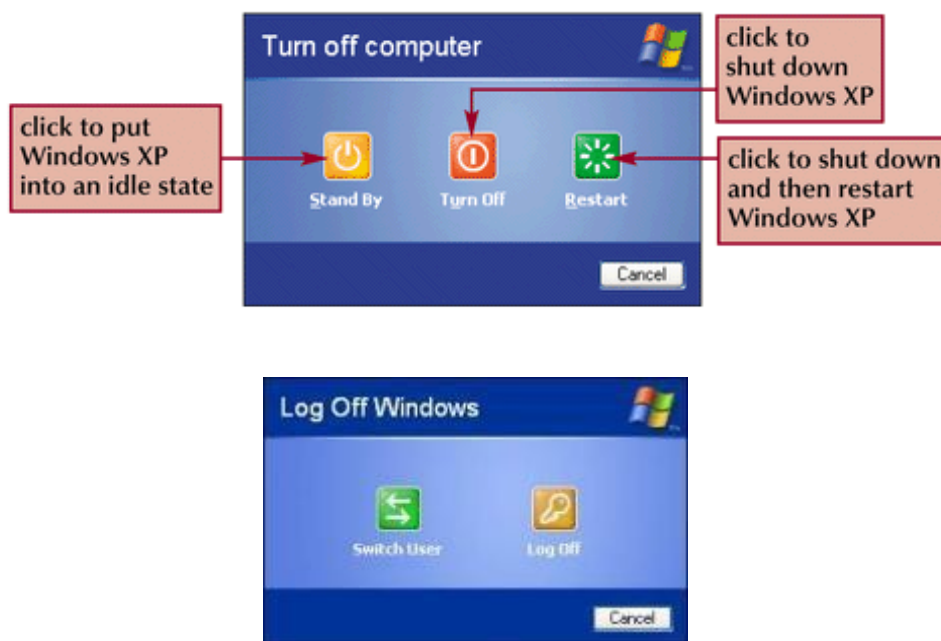
Check Your Understanding

1. List down 5 applications that are available in Windows Accessories.

Turn Off/ Log Off Windows XP

To log off from Windows XP or to turn it off completely, you can click on Start and then click on Log Off option. This would log out the user from its account and bring the user back to the main menu from where another user can login.

To shutdown the Windows XP completely, you can click on Start and then click on Shutdown option. This would shutdown the computer.



Linear and Logical Troubleshooting

Linear Logical Troubleshooting uses logical steps in a progressive manner with the goal of eliminating possible contributing factors until the cause of an issue is isolated. This is done by defining a set of influential components and then reducing this set through the use of closed-ended questions and closed-ended testing. Each question or test narrows the focus of our investigation until the root cause of the issue becomes apparent.

Example: The issue is to determine what state the customer's father was born in by asking "Yes" or "No" questions. You could do this using by asking questions based on the alphabet.

"Is the first letter of the state in the first half of the alphabet?"

Notice that a "No" answer is as useful as a "Yes" When done properly, Linear Logical Troubleshooting does not care what the answers are, the method will still pull focus on one cause or in this case one state.

Example Continued: The answer to the first question was "No." We can follow up with the question.

"Is the first letter of the state between the letter T and Z, including the end letters?"

Notice how carefully the question was phrased. If I had not included the end points, the customer might have decided that Texas was not between T and Z. He would have answered "No" and I might have assumed the first letter of the State was higher than T but less than L.

Example Continued: The customer answered "Yes", so we now know the state starts with a letter greater than, but not including S. If we follow the example to the conclusion, the next question would be,

"Is the first letter of the state between W and Z, including the end letters?"

"No"

"Does the first letter of the state start with T?"

"No"

Does the first letter of the state start with U?

"Yes"

Was your father born in Utah?

"Yes"

It took six questions to focus on the correct state.

Narrow the focus

When troubleshooting, you need to look into the issue in detail and narrow the focus to system components.

Many phases of an application use different system components. For instance, the program phases of connectivity, printing, and the playing of media use different system components. Troubleshooting these phases therefore requires you to first narrow the focus on the involved system components to determine possible system conflicts.

If the issue is occurring while printing it is not likely that the system components for the CD-ROM drive or sound card are involved. Therefore, the focus is on system components involved in the task of printing such as printer driver configuration, video driver configuration, hard disk space, etc.

Sometimes something odd or unpredictable is causing the issue. The following troubleshooting techniques will aid in eliminating 80% of the most likely conflicts.

- **Subtractive technique** - Used when the customer is trying to do something that you know should work, but for some reason is running into problems.
- **Additive technique** - Situations where the customer is trying to do something new, and is running into problems.

Subtractive Technique

The essence of subtractive troubleshooting is simple:

1. Form a mental picture of the system components.
2. Divide the system into two parts along a testable line.
3. Test to see which side of the line has the problem.
4. Repeat the process until you have isolated the problem component.

This method is also sometimes called the divide-and-conquer method.

Example: "I can't print from my program – nothing happens at the printer." This is a fairly common problem across applications and even platforms.

STEP 1: Construct a mental list of the system components:

- Computer
- Printer
- Printer cable
- Printer driver
- Application
- The file the customer is using.

This produces the following list:

File
Application
System software
Printer driver
Computer hardware
Printer cable
Printer

Important: Two different engineers may divide up the system differently, but as long as each has a fairly complete picture of the whole system the result is the same.

Step 2: Draw a line between two components and test.

The placement of the first line is arbitrary. For now, let's say we want to check the printer first. Is the problem in the printer, or somewhere else? We draw a line between the printer and the rest of the components:

File
Application
System software
Printer driver
Computer hardware
Printer cable

Printer

Important: Line placement is discussed in greater detail later in this lesson.

Step 3: Devise a test that will tell you which side of the line has the problem.

This test will indicate if the problem is the printer itself, or in the computer or connections. This is a fairly easy one to check with most printers:

- Run the self-test for this particular printer.
- Double-check that the connections are tight
- Check that the printer is on-line.

If the printer successfully prints a self-test, then obviously the problem is in the printer itself. Since we don't manufacture printers, the problem is resolved. The customer still needs to consult with the printer manufacturer or dealer.

If the printer runs a self-test, and is on-line, and the connections are tight, there is little likelihood that the problem is in the printer. (There is still the possibility of a bad serial port on the printer, but this is beyond the resolution of our simple example.) So now our chart looks like this:

File
 Application
 System software
 Printer driver
 Computer hardware
 Printer cable
 Printer

Step 4: Recycle.

The printer is no longer under consideration as the source of the problem. And the next obvious step is to draw another line, like this:

File
 Application
 System software
 Printer driver
 Computer hardware
 Printer cable
 Printer

Now we want to check if we have a problem with the particular file we are trying to print. To test this, we print another file from the same application. If it prints correctly, then there is obviously a problem with the particular file the customer was trying to print. How you proceed from that point depends on the application you are supporting. If the other file fails to print as well, you most likely have a problem elsewhere. (The possibility of multiple corrupted files still exists, but is again beyond the resolution of our simple diagram.) Our new diagram will look like this:

File
 Application
 System software
 Printer driver
 Computer hardware
 Printer cable
 Printer

Obviously, if you continue drawing lines and testing, you will come to the component that contains the problem. At that point, you have either discovered the exact problem, or you will need to break the component down further and redraw your diagram, as in the case of the printer serial port issue noted earlier.

Drawing the lines

In the above examples, the line was first drawn at the ends of the list. This was done for simplicity's sake to narrow the focus on a single component. In real troubleshooting, the

usual practice is to try and draw the line as nearly in the middle of the list as possible. This way, you eliminate many more suspect components with each test.

For instance, let's look at the list again:

File
Application
System software
Printer driver
Computer hardware
Printer cable
Printer

If, instead of running the printer's self-test, you draw a line between the application and the system software, what test suggests itself? You can possibly try printing from a Command prompt. This causes the operating system to print bypassing our application entirely. If the Command prompt prints correctly, you have eliminated the bottom three items on the list from immediate consideration. Now you just have to see whether it is a problem in the file, or in the application. On the other hand, if the Command prompt does not print correctly, you've eliminated the top four items, not just one or two.

Note: *In general, you try to devise tests that split the current suspect list down the middle. This isn't always possible, but it is a good rule of thumb.*

Your own experience and the resources available for your product can suggest other ways to draw the lines – approaches that vary from the rule of thumb. For instance, if you know the program you support can't print files over a certain size, you might make that your first question. If you get an error message when trying to print, that may suggest other things to try. This is the part of troubleshooting that is more an art than a science, but as you gain experience and confidence with your knowledge of your product, it will become second nature to you.

As you can see, the basics of troubleshooting in this way are very simple. In practice, though, several things can complicate matters. Systems are seldom as simple as the one used in this example. Your knowledge of the system may not be up to the task of listing the components. The system may have complex connections, where components interact several different ways. The answer in these cases is to get more information, and to simplify.

The powerful thing about this kind of troubleshooting is that it doesn't require a great deal of specific knowledge to start producing useful results.

Subtractive Troubleshooting Pitfall: The only remaining pitfall for the unwary is the possibility that there may be more than one problem lurking in the system. When you have gone through your troubleshooting procedure, found and eliminated a problem, and the symptoms don't go away or perhaps only change slightly, then you have another problem in the system to track down. And you have all the tools track it with!

Additive Technique

The additive technique of troubleshooting is sometimes known as the one-step-at-a-time method, and is usually used when you and the customer are breaking new ground.

The customer wants to know how to do something. You look at the customer's request and determine that it should be possible with your product, though you don't have any record of anyone actually doing that. How do you help the customer? Depending on the support boundaries for your product, you can tell them about or help them along with the additive method. To use a different example, let's suppose a customer needs help composing a complex formula in a spreadsheet you support. An additive approach might be to break down the formula into smaller pieces, trying and testing each of them in its own cell on the spreadsheet. Then, add one part at a time into the cell containing the full formula. Since we only change or add one thing at a time, if we run into trouble, we know that the problem is in the last step we took.

Check for Success

As you are executing the most likely approach, ask yourself:

- Did the proposed solution solve the problem?
- Is there any further testing we need and can do to determine that the problem is indeed fixed?
- Does it work in the customer's usual working environment?

If you AND the customer are satisfied that the problem has been resolved, move on to the next step.

If the printer refuses to print a self-test, then you have obviously tested the printer and found it to be the problem. If you have determined the problem is a printer driver, try to see if the printer will print with an updated driver, or if the computer will print to another printer. You will not always be able to test each diagnosis, but you should always try.

What if the Solution Does not Work?

If another very likely solution exists, go ahead and try it. After you have exhausted all avenues, you may need to contact a mentor.

Otherwise, the engineer should be ever ready to return to Gathering Information and possibly redefining the problem.

Note: *Again, sometimes there is more than one problem in a given system, so the fact that you found a problem doesn't necessarily mean that you found THE problem. Testing lets you know. You may have to perform the previous steps until a resolution is achieved. Each cycle through should leave the previous modifications in place. This will ensure that a combination of conflicts is caught.*

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Being systematic will result in success while random trial-and-error usually results in frustration.

Check for success pitfall: If the first strategy does not resolve the problem, the engineer may fall back on hit or miss problem solving. Remember to ask yourself why you are trying the next strategy. If you aren't clear why, then examine what you know more closely, gather more facts or consult your resources. There is always a best strategy, but sometimes you need to gather more information before determining the best strategy under the current circumstances.

Tie up Loose Ends

If you have made it to this step, you have most likely resolved the issue. Now you must explain to the customer what was discovered, whether you can put the machine back exactly as it was before the call, and how to avoid the issue in the future.

The engineer needs to make sure the issue is really closed. Are there any loose ends that need to be tied-up before releasing the phone connection? Here are some ideas to consider before hanging up the phone:

- Is the customer satisfied?
- Does the operating environment, or customer-specific settings need to be restored?
- Was the fix substantial enough that the customer should not have to call back on the same issue?
- Was the incident satisfactorily resolved?
- Is follow-up required?

This stage often takes some diplomacy, especially if the resolution requires you to disable a program or utility the customer was using prior to the call. Always give the customer the option to restore the machine exactly as it was prior to the call. Explain the upside and the downside of the restoration.

More often, you fix a system issue that was just exposed by the application. This is a win-win for the customer and us.

Fix

If the problem is an easily replaceable part, replace it. If the problem is a conflicting extension, we can remove the offending extension. If the customer was applying incorrect procedure, we can show the customer the correct way to do the task. Usually, the fixable problem is obvious to everyone. It is also very satisfying to the engineer, since the customer is almost always thrilled that you were able to help them.

Workaround

You can't always make things work exactly the way the customer wants. Sometimes you need to find another way for the customer to proceed to the desired result. This is called a workaround. Up against a limit to the number of characters in a formula? Try breaking the formula up across several cells, or using Boolean notation to reduce the number of characters needed. HTML doesn't recognize multiple spaces? Try using a non-breaking space character, or using tables to space your columns. Finding a creative workaround for the customer is also a rewarding part of working with customers.

The "B" word

Sometimes products will not do what the customer wants it to do. Be very careful of calling something a "bug", however. Programmers and customers both use the word, but they do not mean the same things by it. Here's a handy table to show you the differences:

Programmers	Customers
There is a specification written that describes in great detail what this program is supposed to do. If the program doesn't do what the specification says it will do, then that is a bug.	I have in mind something that I want this program to do. If this program will not do that, then that is a bug.

Obviously, with such a chasm between the technical and common meanings of the word, it is best to avoid calling something a bug until it has been checked against the specification and added to the bug list. This avoids having your name quoted in the trade journals ("So-and-so at Microsoft admitted this bug to our reporter on a call to tech support...") (Yes, it has happened.) Thank the customer for pointing out this problem, or thank them for their suggestion. Still, sometimes we just get to the point where we can't help the customer any further. Sometimes there are bugs in the program. This is when your customer service skills come in to play. And, actually, getting to this point is a victory in its own right. You have attacked and isolated a technical problem, and have it defined to the point where it can be dealt with.

A Final Note

The very first time you encounter a problem is when the most learning takes place. Subsequent times, the troubleshooter applies past knowledge, whether consciously or not, thus building good knowledge upon good, or bad knowledge upon bad. The most learning takes place on the first shot, because that is when the troubleshooter's knowledge goes from nothing to something. Later, the knowledge may go from something to something else, but never again will it increase as much as that first time.

A reflective, well-researched approach to solving the problem the first time will ultimately pay off in savings when the problem is revisited. Given the thousands of problems

presented during the Support Engineer's career, the time taken in deliberating over a new problem will save immeasurable time when that problem becomes an old one.



Check Your Understanding

1. What is linear and logical troubleshooting?
2. List down the 2 methods for linear and logical troubleshooting.
3. What is additive technique?
4. What is subtractive technique?
5. What are the pitfalls of using subtractive technique?

Silver Bullet Troubleshooting

When talking about Linear Logical Troubleshooting, you should also understand the opposite type of troubleshooting, often called Silver Bullet Troubleshooting. Using Silver Bullet, we take single shots at possible right answers. If we guess correctly, the cause is identified in almost no time. If we guess incorrectly, we are no closer to the correct answer, and may have lost the confidence of the customer by following the wrong path. Remember, using Linear Logical means that every answer moves us closer to the cause and the solution. Silver Bullet puts all the emphasis on a "Yes" and we gain nothing from a "No."

Points to Remember

- Linear Logical Troubleshooting is a progressive method to eliminate possible causes until the true issue is isolated.
- Linear Logical Troubleshooting uses simple, closed-ended questions that narrow the focus of investigation regardless of the answer.
- The Subtractive method of troubleshooting is a method in which the Support Engineer makes a mental list of all of the components that could be involved in creating the problem. Then methodically eliminates the components as the culprit until a solution is found.
- Silver Bullet Troubleshooting is the method of trying possible solutions without doing the proper background investigation.
- Silver Bullet Troubleshooting often wastes time with wrong solutions and reduces customer confidence.



Check Your Understanding

1. What is Silver Bullet Troubleshooting?

Information Gathering

Gathering information is an important and ongoing part of Linear Logical Troubleshooting. It allows the Support Professional to focus the investigation simply by asking some standard questions. At times the customer may feel the questions are pointless, but facts and information are never pointless. Inform the customer that gathering information allows us to see the entire picture.

Example: *"I have several questions to ask in order to be thorough in analyzing all the facts before I start drawing conclusions."*

Limiting the Field

When a customer calls saying they have a problem, the list of possible causes can be endless. The Support Professional needs to start asking questions to focus the investigation on a particular area of the computer. The first thing the Support Professional can do is have the issue explained completely. Do this by asking open-ended questions that allows the customer to speak freely on their situation.

Example: *"So what seems to be the trouble today?" or "How can I help you today?"*

Once the situation has been explained, the Support Professional should start gathering specific information about the customer's system. These are a standard set of questions that allow the Support Professional to understand the customer's environment. Much of the information might feel unneeded or even a waste of time, but this basic computer information prevents the investigation from taking a wrong turn or making a wrong assumption.

Some of the questions you should ask are:

- Who manufactured your computer? Does it have a brand name or was it built by a local shop?
- What version of Windows are you running? Not sure, let's take a look at the system properties to find out for sure?
- How much memory and what type of processor are you running? System information can help us with this as well as an original receipt for the computer.
- What version of the software in question are you running? Can we go to the Help or About menu and find out?

Example: *"So right before the computer locks, what is it doing and what is being displayed on the screen?" or "Can you be more specific about the problems you had during the install?"*

Each answer and each explanation will start to limit our field of investigation.

Example: If the issue happens within Windows, then we have eliminated the hardware POST (Power On Self-Test) and the boot process prior to Windows launching. If the issue only started after certain software was installed, we have limited the field to what was changed during the installation process.

When the Support Professional has formed a picture of the customer's issue, then it is time to start using closed-ended questions. This allows us to pin down the specifics of the issue and specifics of our field of investigation. Not only do we use closed-ended questions to gather more information, but also to test assumptions that we are starting to make about the issue.

Example: "Please tell me the exact error message, word for word." or "When the program stops responding, does your mouse cursor continue to work or does it lock as well?" You can even test ideas. "If you boot the computer without a CD in the drive, does it have any problems?"

In summary, when gathering information, we always start with the open-ended questions that allow the customer to explain why they called Microsoft Support. We then concentrate on the facts about the computer system and the software installed. Our picture of the customer's situation will now allow us to ask directed open-ended questions. We are firming up our understanding of the issue and starting to focus on particular areas of the computer. Finally, we ask closed-ended questions that either fully explain the situation, or test our understanding.

Points to Remember

- Forming a picture of both the issue and the computer system is vital to Linear Logical Troubleshooting.
- Emphasize to the customer that gathering information on their computer system allows us to do the best job possible.
- Remember to ask open-ended questions and allow the customer the opportunity to explain the issue up front.
- Ask closed-ended questions to gather specifics about the issue and to test assumptions made during the information gathering stage.

Day3: Clean & Upgrade Installation

Module Objectives:

By the end of this module, you will understand:

- By the end of this module you will understand:
- System requirements for Windows XP installation
- Different methods of Windows XP Installation
- Pre-requisites for Clean Installation
- Disk Partitions
- File System for Windows XP
- Different phases of clean installation process of Windows XP
- Windows Product Activation
- Difference between upgrade & clean installation
- Different upgrade paths available
- Windows Upgrade Advisor
- Upgrade Installation

Windows XP Installation Methods

There are five methods for installing Windows XP.

Method 1: Clean Install

A clean installation removes all data from the hard disk by repartitioning and reformatting the hard disk and reinstalling the operating system and programs to an empty (clean) hard disk.

Method 2: Upgrade to Windows XP

This method is used to upgrade from previous version of Windows Operating System such as Microsoft Windows 98, Microsoft Windows Millennium Edition, or Microsoft Windows 2000 Professional.

Method 3: Install Windows XP to a new hard disk

This method is used to install Windows XP to a new hard disk. This is typically done when a new hard disk is installed on a computer.

Method 4: Install Windows XP to a new folder (parallel installation)

This method is used to install Windows XP to a new folder (parallel installation) to either run two operating systems, or to access, repair, or retrieve data from a damaged disk.

Method 5: Perform a multiple boot operation (not supported by iYogi)

This method is used to install Windows XP as a separate operating system on the computer. Using this method more than one operating system can be installed on a computer and One can also select which operating system would start by default every time that you start your computer.



Check Your Understanding

1. What is the difference between clean install and installing Windows XP on a new hard drive?
2. What is parallel installation and why is it required?
3. What is multi boot operation?

Hard Disk Technologies

A hard disk drive (hard disk, hard drive, HDD) is a non-volatile storage device for digital data. It features one or more rotating rigid platters on a motor-driven spindle within a metal case. Data is encoded magnetically by read/write heads that float on a cushion of air above the platters. The common Hard Disk Technologies are:

IDE/ATA:

IDE (Integrated Drive Electronics) is a standard electronic interface used between a computer motherboard's data paths or bus and the computer's disk storage devices. The IDE interface is based on the IBM PC Industry Standard Architecture (ISA) 16-bit bus standard, but it is also used in computers that use other bus standards. Most computers sold today use an enhanced version of IDE called Enhanced Integrated Drive Electronics (EIDE).

SATA:

SATA is Serial ATA; an evolution of the Parallel ATA physical storage interface. Serial ATA is a serial link -- a single cable with a minimum of four wires creates a point-to-point connection between devices. Transfer rates for Serial ATA begin at 150MBps.

One of the main design advantages of Serial ATA is that the thinner serial cables facilitate more efficient airflow inside a form factor and also allow for smaller chassis designs. In contrast, IDE cables used in parallel ATA systems are bulkier than Serial ATA cables and can only extend to 40cm long, while Serial ATA cables can extend up to one meter.

SCSI:

Short for small computer system interface, SCSI interfaces provide for faster data transmission rates (up to 80 megabytes per second) than standard serial and parallel ports. In addition, you can attach many devices to a single SCSI port, so that SCSI is really an I/O bus rather than simply an interface.



Check Your Understanding

1. How SCSI based hard drives are different from SATA based hard drives?
2. How IDE/ATA based hard drives are different from SATA based hard drives?
3. What is the full form of IDE, ATA, SATA, and SCSI?

Disk Partitions

Disk partitioning is the act of dividing a hard disk drive into multiple virtual hard disk drives, referred to as partitions, in order to treat a single physical disk drive as if it were multiple disks.

A **disk partition** is a logical section of a hard disk on which the computer may write data. Partitions offer a way to divide the space on a single physical hard disk into multiple areas, each of which is treated as a different disk within Windows.

Types of hard drive partitions:

- **Primary:** A primary partition is one that can be used as the system partition. If the disk does not contain a system partition, you can configure the entire disk as a single, extended partition.
- **Extended:** An extended partition provides a way to bypass the four primary partition limits. One cannot format an extended partition with any file system. Rather, extended partitions serve as a shell in which one can create any number of logical partitions.
- **Logical:** A Logical Partition (LPA) is the division of a computer's processor, memory, and storage into multiple sets of resources so that each set of resources can be operated independently with its own operating system instance and applications.

Apart from the above three partitions, there are two more partitions that are discussed underneath:

- **System Partition:** The system partition is a disk partition that contains the boot sector and files such as NTLDR that are needed for booting Windows XP and earlier.
- **Boot Partition:** The boot partition is the disk partition that contains the Windows operating system files and its support files, but not any files responsible for booting.



Check Your Understanding

1. What is a primary partition?
2. What is an extended partition?
3. What is a logical partition?
4. What is a system partition?
5. What is a boot partition?

File System

A file system is a method of storing and organizing computer files and their data. Essentially, it organizes these files into a database for the storage, organization, manipulation, and retrieval by the computer's operating system.

Windows makes use of the FAT and NTFS file systems to store and organize computer files.

FAT

The File Allocation Table, or FAT file system uses a table whose entries point to the beginning of the files on the drive. There is a copy of the File Allocation Table for backup purposes. If possible, the system will use the copy of the FAT if the original table becomes corrupt. There are 3 versions of FAT. FAT12 is used on floppy disks and very small hard drive partitions, and FAT16 and FAT32 are used on hard drive.

NTFS

NTFS (New Technology File System) is the preferred file system for Windows XP. It can be used on both basic and dynamic disks, and provides many features and benefits that are not found in other file systems. FAT partitions and volumes can be converted to NTFS at any time. The benefits of NTFS include:

- **File & Folder Security:** Allows you to control which users can access applications and data.
- **Increased performance:** Uses a more efficient mechanism for locating and retrieving information from the hard disk than FAT or FAT32.
- **Disk quotas:** Provides the ability to control how much disk space each user can have.
- **Disk compression:** Can compress files to create more available disk space
- **Encrypting File System (EFS):** Allows encryption of data.



Check Your Understanding

1. What are the three versions of FAT and where are they used?
2. What are the benefits of using NTFS?
3. What is the full form of FAT, NTFS, and EFS?

Clean Installation

Follow the below steps to perform Windows XP clean installation:

1. Insert the Windows XP CD into your computer and restart your computer.
2. It will prompt you to start/boot from the CD, press **SPACEBAR**. If you miss the prompt (it only appears for a few seconds), restart your computer to try again.
3. Windows XP Setup begins. During this portion of setup, your mouse will not work, so you must use the keyboard. On the Welcome to Setup page, press **ENTER**.
4. On the Windows XP Licensing Agreement page, read the licensing agreement. Press the **PAGE DOWN** key to scroll to the bottom of the agreement. Then press **F8**.
5. Once you click F8 to accept the license agreement it will display a new page which enables you to select the hard disk drive on which Windows XP will be installed. Once you complete this step, all data on your hard disk drive will be removed and cannot be recovered. It is extremely important that you have a recent backup copy of your files before continuing. When you have a backup copy, press D, and then press L when prompted. This deletes your existing data. Press **ENTER** to select un-partitioned space, which appears by default.
6. Press **ENTER** again to select **Format the partition using the NTFS file system**, which appears by default. You can choose other file systems also.
7. Windows XP erases your hard disk drive using a process called formatting and then copies the setup files.
8. Windows XP restarts and then continues with the installation process. From this point forward, you can use your mouse. Eventually, the **Regional and Language Options** page appears. Click **Next** to accept the default settings. If you are multilingual or prefer a language other than English, you can change language settings after setup is complete.
9. On the **Personalize Your Software** page, type your name and your organization name. Some programs use this information to automatically fill in your name when required. Then, click **Next**.
10. On the **Product Key** page, type your product key as it appears on your Windows XP CD case. Then, click **Next**.
11. On the **Computer Name and Administrator Password** page, type a name that uniquely identifies your computer. If you connect your computer to a network, you will use this computer name to find shared files and printers. Type a strong password that you can remember in the Administrator password box, and then retype it in the Confirm password box. Then, Click **Next**.
12. On the **Date and Time Settings** page, set your computer's clock. Then, click the Time Zone down arrow, and select your time zone. Click **Next**.
13. Windows XP will spend about a minute configuring your computer. On the **Networking Settings** page, click **Next**;
14. On the **Workgroup or Computer Domain** page, click **Next**.
15. Now Windows XP will spend 20 or 30 minutes configuring your computer and will automatically restart when finished. When the **Display Settings** dialog appears, click **OK**.
16. When the **Monitor Settings** dialog box appears, click **OK**.

17. The final stage of setup begins. On the **Welcome to Microsoft Windows** page, click **Next**.
18. On the **Help protect your PC** page, click **Help protect my PC by turning on Automatic Updates** now. Then, click **Next**.
19. Windows XP will then check if you are connected to the Internet. If you are connected to the Internet, select the choice that describes your network connection. If you're not sure, accept the default selection, and click **Next**. If you use dial-up Internet access, or if Windows XP cannot connect to the Internet, you can connect to the Internet after setup is complete. In such scenario click **Skip**.
20. Windows XP Setup displays the **Ready to activate Windows** page. If you are connected to the Internet, click **Yes**, and then click **Next**. If you are not yet connected to the Internet, click **No**, after the setup is complete, Windows XP will automatically remind you to activate and register your copy of Windows XP. Remember if you are connected to Internet than setup will prompt you to register the windows, if you choose to skip as Internet connection is not working it directly take you to User's page.
21. On the next screen **Who will use this computer?** type the name of each person who will use the computer. After typing the names, Then click Next. To add user's after setup is complete or to specify a password to keep your account secured.
22. On the **Thank you!** page, click **Finish**. Congratulations! Windows XP setup is complete. You can log on by clicking your name on the logon screen.

Setup Process Overview

Windows XP Setup presents a Graphical User Interface (GUI), which separates the process into five phases. After the final phase, the system is rebooted:

- **Collecting Information-** As Setup collects information about your system, you can do the following:
 - Specify an upgrade or a clean installation.
 - Read and accept the license agreement.
 - Enter your product key.
 - Select special Setup options (for example, language, specify Windows installation folder).
- **Dynamic Update-** Dynamic update, a new feature in Windows XP, connects to the Microsoft Windows Update Web site and downloads updated setup files, and critical bug fixes. Critical security fixes may also be included, thereby enhancing the Setup experience. Dynamic update requires that your computer have the following:
 - Modem
 - ISP connection
 - Correct versions of wininet.dll and urlmon.dll installed. IE 4.01 or greater installed
- **Preparing Installation-** In preparing for installation, Setup does the following:
 - Copies files to your hard disk
 - Provides you the option of repairing an existing installation, if one exists.

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- Provides you the option of specifying the partition on which to install Windows. Setup can also format partitions.
- Restarts your computer
- **Installing Windows-** While installing Windows, Setup does the following:
 - Installs devices
 - Sets system locale.
 - Customizes your keyboard.
 - Prompts you to specify your name and organization.
 - Prompts you to specify computer name and administrator password.
 - Installs networking components (default components include Client for Microsoft Networks, File and Print Sharing for Microsoft Networks, TCP/IP transport protocol with automatic addressing). (Windows XP Professional)
 - Prompts you to join a workgroup or domain. (Windows XP Professional)
 - Performs the configuration
 - Copies files
 - Installs Start Menu items Registers components
- **Finalizing Installation-** In finalizing installation, Setup does the following:
 - Saves settings, and removes any temporary files used during Setup.
 - Restarts your computer
- **Computer Starts for the First Time After Setup-** After completing the setup computer starts for the first time.



Check Your Understanding

1. Which phase provides you an option to enter the product key?
2. Which phase provides you an option of specifying the partition on which to install Windows?
3. Which setup process phase prompts you to join a workgroup or domain?
4. Which setup process phase allows you to install networking components?
5. Which setup process phase allows you to customize the keyboard?

Windows Product Activation (WPA)

Windows Product Activation is a license validation procedure used by Microsoft Corporation in all versions of its Windows proprietary software operating system from Windows XP and Windows Server 2003 onwards. It is used to enforce the Windows End User License Agreement by preventing or hampering the use of the operating system after a specific period of time until it is verified as genuine by Microsoft.

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Methods of Activation

- **Internet:** If you select **activate** and you have an active Internet connection, communication to the activation server occurs through secure HTTP.
- **Modem:** If an active Internet connection is not found or if activation over the Internet fails, the activation process searches for a modem. If a modem is found, the user is prompted to connect to a Global Network Service (GNS) toll-free number.
- **Telephone call:** The opportunity to activate by making a voice call occurs during OOBE (Out-of-Box Experience) or in the Activation wizard. For telephone activation, the wizard presents a 50-digit activation code that must be read to a Customer Service Representative. A 42-digit confirmation code from the Customer Service Representative must be entered back into the PC. The telephone activation screens also provide the option to change the product key for the system. If you used the same product key on several installs, you can correct it here.

Upgrade Installation

Upgrading vs. Clean Installation

Upgrading

During an upgrade, existing user settings are retained, as well as installed applications. If you perform a clean installation, the operating system files are installed in a new folder, and you must reinstall all of your applications and reset user preferences, such as, desktop and application settings.

Clean Installation

If the current Operating System being used on the computer doesn't support an upgrade to Windows XP Home/Professional, you need to choose a clean install. Other cases where you will need to perform a clean reinstall are:

- No operating system is installed on the computer
- The installed operating system does not support an upgrade to Windows XP.
- The computer has more than one partition and needs to support a multiple-boot configuration using Windows XP and the current operating system.
- A clean installation is preferred.

The most basic advantage of a clean installation is that all of your systems can begin with the same configuration. All applications, files, and settings are reset. You can use a single disk image or answer file to make sure that all of the desktops in your organization are standardized. In this way, you can avoid many of the support problems that are caused by irregular configurations.



Check Your Understanding

1. Explain any three scenarios where you will need to perform Windows XP clean installation?
2. What is the difference between Windows XP clean installation and Upgradation?

Windows Upgrade Advisor

It is a Microsoft utility to which check your system configuration and settings and displays the report whether your computer is compatible to upgrade or not.

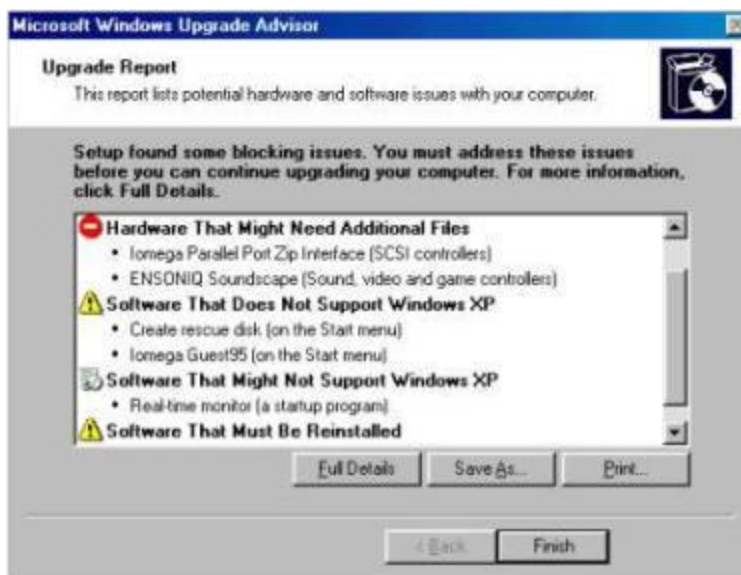
You need to download and install the upgrade advisor then run the utility to scan the system it will generate a scan report which will help you to analyze whether your system can be upgraded or not.

Link: <http://www.microsoft.com/windowsxp/home/upgrading/advisor.msp>

You need to follow the wizard instructions to generate a scan report.



The Upgrade Advisor displays the compatibility report of drivers, hardware and application. The scanned report of Upgrade Advisor looks as follows:



Upgrade Installation

When performing an upgrade from Windows 98 or Windows Me, it is recommended that you clean boot the Windows installation prior to starting the upgrade. This can prevent many upgrade problems caused by applications running on the computer at the time of installation. It is also recommended to scan the computer for any virus and spyware and clean the computer before starting an upgrade.

To upgrade to Windows XP, follow these steps:

1. Start your computer, and then insert the Windows XP CD into the CD or DVD drive.
2. If Windows automatically detects the CD, click **Install Windows to start the Windows XP Setup Wizard**.
3. If Windows does not automatically detect the CD, click **Start**. Then click **Run**. Type the following command, and then click **OK: CD drive letter:\setup.exe**
4. When you are prompted to select an installation type, select **Upgrade** (the default setting), and then click **Next**.
5. Follow the instructions on the screen to complete the upgrade.

Day 4: Windows XP Repair/In Place and Parallel Installation

Module Objectives:

By the end of this module you will understand:

- Parallel Installation of Windows XP
- Repair Installation of Windows XP
- Windows XP Installation/upgrade issues & Troubleshooting
 - Stop Errors
 - Black Screen Errors
 - Other Issues

Windows XP Parallel Installation

A Windows XP parallel install installs a second copy of Windows XP on your PC.

Uses of Parallel Installation

Windows XP parallel installation is required in order to:

- Run two operating systems in one partition
- Repair/access/retrieve data from a damaged disk

Steps to perform parallel installation

1. Start your computer from the Windows XP CD (or boot disks). To do this, insert the Windows XP CD into your CD or DVD drive, and then restart your computer.
2. When the **Press any key to boot from CD** message appears on the screen, press any key to start the computer from the Windows XP CD.
3. At the Welcome to Setup screen, press **ENTER** to begin Windows XP Setup.
4. Read the Microsoft Software License Terms, and then press **F8**.
5. Select the partition in which you want to install Windows XP, and then press **ENTER**.
6. Select the **Leave the current file system intact (no changes)** option, and then press **ENTER** to continue.
7. Press **ESC** to install to a different folder.
8. Press **ENTER** to continue.
9. Follow the instructions on the screen to complete Windows XP Setup.

Reverting to the original installation

- Start the computer in either Normal Mode or Safe Mode.
- Turn on the functionality of the set command in the Windows XP Recovery Console. To do this,
 - Locate and then click the **SetCommand value** under the following key in the registry:
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\WindowsNT\CurrentVersion\Setup\Recovery Console
 - On the Edit menu, click **Modify**.
 - In the Value data box, type 1, and then click **OK**
- Start the computer to the Windows XP Recovery Console, run the following command: set AllowAllPaths = true
- Type x (where x is the drive letter of Windows installation), and then press **ENTER** to change to the appropriate drive.
- Type cd\ to change to the root folder of the drive.
- Rename the Windows folder, the Documents and Settings folder, and the Program Files folder. To do so, run the following commands:
 - rename windows winnew
 - rename docume~1 docnew
 - rename progra~1 prognew

- rename winold windows
- rename mydoc.old 'documents and settings'
- rename progra.old 'program files'

After you determine that the current installation is the installation that you want to leave intact, delete the remaining Win xxx and Prog xxx folders.



Check Your Understanding

1. What is Windows XP Parallel Installation and why is it required?
2. Mention the commands that you will use to revert to the original installation after performing a Windows XP parallel install.

Windows XP Repair Installation

Repairing a Windows XP installation is valuable when you need to keep your programs and data intact but need to restore the Windows XP system files to their original state.

A Windows XP repair install is an easy fix for startup and other hard to troubleshoot issues in Windows XP before you resort to a clean install. This option will not rebuild your computer's registry, delete applications and user settings, or fix problems caused being caused by a program.

Steps to perform repair installation

1. Insert the Windows XP CD into your computer's CD drive or DVD drive, and then restart your computer.
2. When you receive the **Press any key to boot from CD** message on the screen, press a key to start your computer from the Windows XP CD.
3. The following message on the Welcome to Setup screen will appear:
 - This portion of the Setup program prepares Microsoft Windows XP to run on your computer: To setup Windows XP now, press ENTER. To repair a Windows XP installation by using Recovery Console, press R. To quit Setup without installing Windows XP, press F3.
4. Press **ENTER** to set up Windows XP.
5. On the Windows XP Licensing Agreement screen, press **F8** to agree to the license agreement.
6. Make sure that your current installation of Windows XP is selected in the box, and then press **R** to repair Windows XP.
7. Follow the instructions that appear on the screen to reinstall Windows XP.



Check your understanding

1. What is Windows XP Repair Installation?
2. List down few scenarios in which repair installation is useful.

Troubleshooting Windows XP Installation Issues

Error Condition	Suggested Action
Insufficient hard disk space	<ul style="list-style-type: none"> • Delete files or remove programs to free up some disk space. • Install an additional hard disk or create an additional partition to hold Windows XP
Setup failure during early text mode portion of Setup	<ul style="list-style-type: none"> • Verify that Windows XP supports the mass storage devices that are on the computer.
Computer's BIOS-based virus scanner gives an error message	<ul style="list-style-type: none"> • Disable the virus protection in the BIOS and enable it again after Windows XP is fully installed.
Setup fails during hardware detection or component installation.	<ul style="list-style-type: none"> • Verify that all hardware is in the Windows Catalog. • Remove non supported devices
Errors accessing the CD	<ul style="list-style-type: none"> • Clean the CD • Try the other CD • Use a different CD-ROM drive
Inability to join the domain during Setup	<ul style="list-style-type: none"> • Check connectivity with domain controller • Check network card functionality & configuration Check account with domain

Windows XP Setup Logs

The Setup utility creates the following files in the installation folder that can be used in the troubleshooting process:

- **Setupact.log:** Contains information about the files that are copied during Setup and other Setup activity
- **Setupapi.log:** Contains information about device driver files that are copied during Setup.
- **Setuperr.log:** This log file contains a list of errors that occurred during installation and their severity (this log file should be 0 bytes in size if no errors occurred during installation). XP writes the setuperr.log file to the %systemroot% folder.

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- **Setup.log:** The Recovery Console (RC) uses the setup.log file to gain information about the Windows installation during repair operations. XP writes the setup.log file to the %systemroot%\repair folder.
- **Comsetup.log:** This log file contains installation information about Optional Component Manager and COM+ components. XP writes the comsetup.log file to the %systemroot% folder.
- **Netsetup.log:** This log file contains information about workgroup and domain membership. XP writes the netsetup.log file to the %systemroot%\debug folder.

These logs are text documents that can be viewed in Notepad, WordPad, or Microsoft Word.



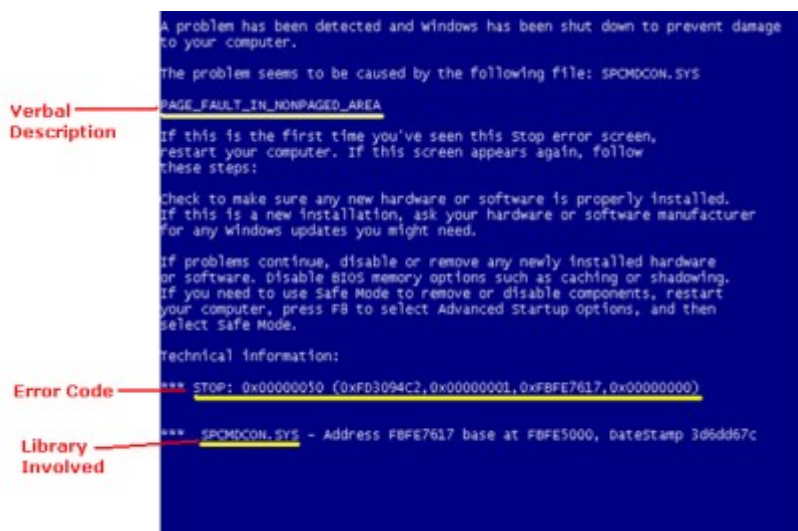
Check your understanding

1. The setup fails and prompts errors while accessing the installation CD. Suggest few possible measures to troubleshoot the problem.
2. List down the name and usage of log files created while installing Windows XP.

Troubleshooting Installation Issues

While installing Windows, you may encounter following types of issues:

- **Stop Errors (Blue Screen Errors, BSoD):** These errors occur when the computer detects a condition from which it cannot recover. The computer stops responding or shuts down and displays a screen of information. Stop errors are identified by a 10-digit hexadecimal number. A stop error occurs when:
 - Windows detects that critical OS data has become corrupted
 - Windows detects that hardware has failed in a non-recoverable fashion



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- **Black Screen Errors:** When you try to start Windows XP, the computer may appear to stop responding (hang) with an empty, black screen immediately after the power-on self test (POST) is complete and before the Windows XP logo typically appears on the screen.



This issue may occur if one of the following conditions is true:

Cause 1

You have a CD, a DVD or a floppy disk in your CD, DVD, or floppy drive when you start the computer.

Cause 2

One or more of the following elements are corrupted and will not load during the boot sequence of the computer:

- Master boot record
 - Partition tables
 - Boot sector
 - NTLDR file
- **Fatal System Errors:** These are operating system errors that cause Windows to stop functioning and can place data at risk. . This can happen due to one of the following reasons:
 - Faulty Hardware
 - Read Errors



Check your understanding

1. List down the possible installation issues that a Windows XP user can encounter.
2. What are the main causes of blue screen errors?
3. What are the main causes of black screen errors?
4. What are the main causes of fatal system errors?

Troubleshooting Stop Error 0x0000000A

Common causes:

- Windows attempts to access a particular memory address at too high of a process internal request level (IRQL)
- An incompatible device driver
- A general hardware problem
- Hardware driver uses an incorrect memory address

Common troubleshooting methods:

- Confirm that your hardware is listed in the Windows Catalog
- Disable all caching in the computer's BIOS, including L2, BIOS, and write-back caching on disk controllers.
- Remove all unnecessary hardware
- If the installation drive is Small Computer System Interface (SCSI)-based, obtain the correct device driver from the manufacturer, confirm that termination is set properly and that you have no ID conflicts, and then turn off sync negotiation at the SCSI host adapter.
- If the installation drive is an Integrated Device Electronics (IDE) drive, verify that the installation drive is attached to the primary channel and that it is set to be the master drive.
- Verify that your memory modules are compatible with each other and that you have not mixed types, speeds, or manufacturers.
- Verify that the motherboard BIOS is current and compatible with Windows XP.
- Update the BIOS with a newer version.
- Turn off any BIOS-based virus protection or disk write protection



Check your understanding

1. List down the main causes of stop error 0x0000000A
2. Describe few methods to resolve stop error 0x0000000A

Troubleshooting Stop Error 0x0000007B

This error indicates that Windows cannot access the boot device (Devices that can boot a computer. Normally a hard disk, but can be a floppy or a CD).

Common causes:

- Boot Sector Virus
- Defective or incompatible hardware
- Defective or missing third-party device driver

Common troubleshooting methods:

- Scan the drive with an up-to-date virus-scanning utility and then check the antivirus manufacturer's website for the proper procedure to repair the disk.
- Verify that all the hardware on the computer is in the Windows Catalog and that no components are defective.
- Obtain the latest drivers for your controller

Troubleshooting Fatal Errors

Below is the error message that can occur during Windows XP setup:

"Fatal Error. An Error Has Been Encountered That Has Prevented Setup from Continuing."

Common troubleshooting methods:

- Select **Last Known Good Configuration** from Windows Advanced Option Menu list
- Run scanreg /fix command using a startup disk and then uninstall any programs that scanreg reported as having a problem.
- Remove any programs that could cause a problem, like antivirus programs



Check your understanding

1. What are the main causes of stop error 0x0000007B?

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2. Mention few measures to solve fatal errors that might occur while Windows setup.

Troubleshooting Black Screen Errors

Actions when specific black screen error messages display

- Remove the Non-System Disk from the Computer
- Test the Hard Drive
- Test the memory
- Reset the default BIOS
- Repair the Master Boot Record
- Reinstall the Windows Operating System

Actions when error message is not listed

- Use Last Known Good Configuration option
- Disconnect all peripheral devices and remove all USB devices and media cards.
- Perform a hard reset
- Perform Repair Installation

Troubleshooting Upgrades

Before upgrading, perform the following actions to avoid any installation issues:

- Ensure that the computer meets minimum hardware requirements
- Check the compatibility of programs and hardware
- Run the Windows XP Upgrade Advisor
- Back up all data on the computer and verify that the data can be restored
- Update the computer BIOS
- Turn off any power management and antivirus features in the computer's BIOS
- Remove all antivirus software
- Uncompress all hard disks
- Run ScanDisk and ScanReg
- Download available driver updates
- Stop all running programs



Check your understanding

1. Suggest few possible measures to solve black screen errors when an error message is listed.
2. Suggest few possible measures to solve black screen errors when an error message is not listed.

3. Suggest few possible measures to solve issues encountered while upgrading to Windows XP.

Day 5: Windows XP Startup & Troubleshooting

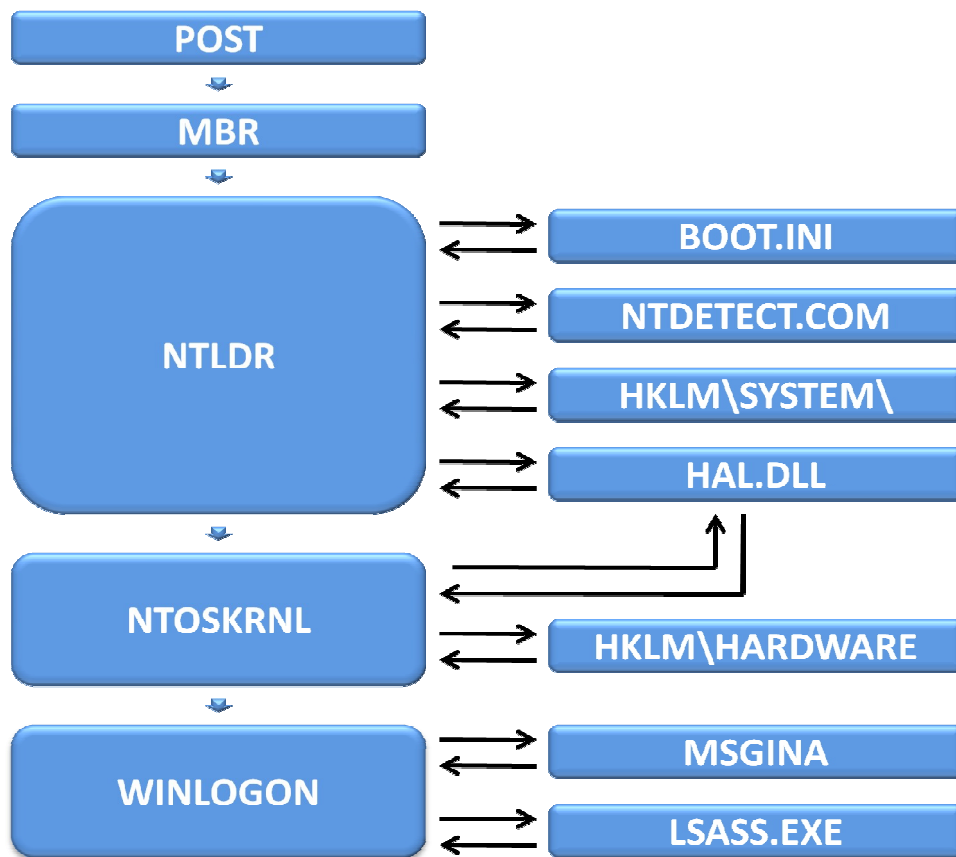
Module Objectives:

By the end of this module, you will understand:

- Discuss Windows XP boot process.
- Discuss Windows startup files
- Discuss advanced boot options
- Understand how Windows Safe Mode differs from Normal Mode
- When to use Safe Mode to test a computer system
- How to proceed when a Safe Mode Test fails
- How to proceed after a successful Safe Mode Test
- Discuss troubleshooting using Recovery Console
- Discuss different troubleshooting scenarios

Boot Process

1. The first process to run is POST (Power On Self Test). It checks the major hardware to run the computer, like motherboard, processor, RAM and hard disk.
2. After POST gets over, BIOS scans all the bootable devices and reads MBR in the hard disk.
3. Then the control gets passed on to the NTLDR in the active drive, which
 - initiates the mini file system drivers
 - reads boot.ini file, which in turn has the information of OS installed
 - loads Ntldr.exe and Hal.dll
4. Ntldr.com scans all the hardware devices and gets this information for NTLDR which is later handed over to Ntldr.exe by NTLDR to make the key HKLM\Hardware.
5. Ntldr.exe after it makes the HKLM\Hardware Key, executes the drivers loaded and decides on error control value of Driver whether system will go in a no boot situation on the failure of a particular driver
6. At last Ntldr.exe initiates session manager and also invokes winlogon which uses msgins.all to present us the box to put in the user name and password and also uses lsass.exe for authentication.



Windows Start-up Files

FILE NAME	DESCRIPTION
Ntldr	The operating system loader
Boot.ini	A file that specifies the paths to Windows XP Professional installations.
Bootsect.dos (multiple-boot systems only)	A hidden system file that Ntldr loads for a Windows XP Professional multiple-boot configuration that includes MS-DOS, Windows 95, Windows 98, or Windows Me.
Ntdetect.com	The file that passes information about the hardware configuration to Ntldr.
Ntbootdd.sys	The device driver used to access devices attached to a SCSI or ATA hard disk whose adapter is not using BIOS
Ntoskrnl.exe	The core (also called the kernel) of the Windows XP Professional operating system. Code that runs as part of the kernel does so in privileged processor mode and has direct access to system data and hardware.
Hal.dll	The HAL (Hardware Abstraction Layer) abstracts low-level hardware details from the operating system and provides a common programming interface to devices of the same type (such as video adapters).
System registry file	The registry file that contains the data used to create the registry key HKEY_LOCAL_MACHINE\SYSTEM. This key contains information that the operating system requires to start devices and system services.
Device drivers	Driver files for hardware devices, such as keyboard, mouse, and video.
LSASS.exe	It serves as the Local Security Authentication Server by Microsoft, Inc. It checks whether a user's supplied identification is valid or not.
Winlogon	Winlogon.exe is a process belonging to the Windows login manager. It handles the login and logout procedures on your

	system.
CSRSS.exe	CSRSS stands for client/server run-time subsystem. It is responsible for console windows, creating and/or deleting threads, and some parts of the 16-bit virtual MS-DOS environment.
SMSS.exe	This is the session manager subsystem, which is responsible for starting the user session, including launching the Winlogon and Win32 (Csrss.exe) processes and setting system variables.



Check Your Understanding

1. What is the function of NTLDR in the boot process?
2. Which file/process makes the HKLM\Hardware key and executes the loaded drivers?
3. What does HAL stand for? What is it responsible for?

Advanced Boot Options

If you make a major change to your Windows XP system such as installing a driver, you may find that Windows will not boot properly. This happens because your hard drive contains drivers and information about your old hardware which causes conflicts that prevent Windows from loading properly.

To solve such problems, use Advanced Boot Options.



Description of Advanced Boot Options

OPTIONS	DESCRIPTION
Safe Mode	Loads only the basic devices and drivers that are required to start the computer. Devices that are initialized include mass storage devices, standard Video Graphics Adapter (VGA), mouse, keyboard, and other essential drivers and computer services.
Safe Mode With Networking	Same as Safe Mode, but with the addition of networking drivers and services. Use when troubleshooting problems that require network connectivity.
Safe Mode With Command Prompt	Same as Safe Mode, but starts a command prompt (Cmd.exe) instead of the Windows Explorer GUI. Generally used when Safe Mode does not function.
Enable Boot Logging	Starts the computer normally, but records driver loading and initialization information to a text file for subsequent analysis.
Enable VGA Mode	Currently installed video driver loaded in 640x480 mode. Useful when the display adapter is configured to a resolution that the monitor cannot support.
Last Known Good Configuration	The computer is started with the configuration that was in use the last time a user was able to log on successfully.
Directory Service Restore Mode	This mode is valid only for Windows-based domain controllers. This mode performs a directory service repair
Debugging Mode	Enables debugging mode on the computer, allowing debug information to be sent over the computer's COM2 serial port

Start Windows Normally	Performs a standard Windows XP boot.
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Safe Mode Testing

When a customer's issue happens while in the Windows environment; whether it is in starting Windows, running Windows or exiting Windows, the first of our troubleshooting steps should be booting the computer into Safe Mode. Safe Mode is a minimal boot of the Windows operating system and bypasses almost all of the Windows startup files.

Note: *Logging on to the computer in Safe Mode does not update the Last Known Good Configuration set. Therefore, if you log on to your computer in Safe Mode and then decide you want to try Last Known Good Configuration, the Last Known Good Configuration set is still available.*

When Safe Mode Works

If you have gone into Safe Mode and the issue does not present itself; either by trying to duplicate the problem or possibly by starting or exiting Windows without trouble, then you have succeeded in limiting your field of investigation and demonstrated to the customer that the core Windows components, those needed for this minimal boot, are still working fine. You can now move on to Clean Boot Troubleshooting using the System Configuration Utility. This is explained in Lesson 4: Clean Boot Troubleshooting.

When Safe Mode Fails

When we boot the computer into Safe Mode and the issue persists, there could be a number of reasons for the cause:

1. There is a hardware issue that is affecting boot prior to Windows loading.
2. Files specific to this version of Windows have been affected.
3. Core Windows files have been affected and need to be replaced.
4. An otherwise unknown hardware issue is present



Check Your Understanding

1. How does Safe Mode differs from Normal Mode?
2. What do you understand by the term Safe Mode testing?
3. What could be the possible reasons for an issue to appear even in the Safe Mode?

Customer Specific Files

Sometimes an issue will continue in Windows Safe Mode because files that contain information specific to the customer are damaged. The files can be:

- The Windows XP registry hives (System, Software, Security, SAM, Default)
- System.ini

The Registry and System.ini

The registry in Windows XP is made up of five files, called “hives”: System, Software, Security, SAM, and Default. These files are created when Windows XP is first installed and, with the exception of the Default hive, are modified over the lifetime of the Windows installation. In Safe Mode, much of the specialty sections of these registry hives are ignored, but parts of them, such as security information, are still loaded and if an error is located in one of these parts the issue will continue in Safe Mode.

The system.ini file is also created during Windows setup and modified over time. Portions of this file are used even in Safe Mode. Registry errors and system.ini errors that continue even in Windows Safe Mode are often caused by corrupt files or a failed software installation. Either way, these files have been damaged and need attention.

Core Windows Files

Problems that occur in both Safe Mode and in Normal mode can often be attributed to core Windows files. These files can become corrupted on the drive or be replaced by incorrect versions.

Sometimes, the core Windows file might be related to the Windows shell. These are the files that provide the Desktop View and the Explorer View of Windows. It is possible to boot Windows into a mode that does not use Windows Explorer for its shell – Safe Mode with Command Prompt.

Unknown Hardware Issues

Sometimes a hardware issue may prevent Windows from loading at all. One of the most common issues is an over-clocked system. Over-clocking means running the CPU or memory at a speed faster than is recommended by the manufacturer. Another reason can be incorrect settings in the System BIOS.

One way to recover from an unknown hardware issue is to try the Last Known Good Configuration option when booting Windows XP.

Another way is to try Safe Mode Testing. If the customer’s issue shows up in Safe Mode, then we can narrow our search to those few areas that affect all of Windows. If the issue does not appear in Safe Mode, then we have narrowed our field of investigation to the difference between Windows in Safe Mode and Windows in Normal mode.



Check Your Understanding

1. What are Customer Specific Files?
2. What five files constitute the 'registry hives'?
3. What is over-clocking?

Recovery Console

Recovery Console is a command-line utility that gives you access to the hard disks when the operating system will not boot. It can be used for:

- Copying files between hard disks and from a floppy disk to a hard disk, but not from hard disk to a floppy disk.
- Controlling the startup state of services.
- Adding, removing and formatting partitions on the hard disk.
- Repairing the MBR or boot sector of a hard disk.
- Restoring the Registry.

Recovery Console can be started using the following three ways:

- **From the Windows XP CD:** Boot using Windows XP CD-ROM. Press a key when you see the message to "Press any key to boot from CD." The next screen offers the option to Repair or Install. Press R to start Recovery Console.
- **From the Boot Floppies:** Download the Setup Boot floppy disk images from Microsoft website and boot the computer into Recovery Console.
- **From the Boot Menu:** If it is installed on the hard drive, it can be selected from the boot menu at start up.

In Recovery Console, you can use only the following items:

- The root folder
- The %SystemRoot% folder and the subfolders of the Windows installation that you are currently logged on to
- The Cmdcons folder
- The removable media drives such as the CD drive or the DVD drive

Recovery Console Command Description

COMMAND	DESCRIPTION
ATTRIB	Changes attributes on one file or directory
BATCH	Executes commands specified in a text file

BOOTCFG	Scans hard disks to locate Windows installations and modifies or re-creates Boot.ini accordingly
CD	Displays the name of the current directory or switches to a new directory
CHDIR	Same as the CD command
CHKDSK	Checks a disk and displays a status report
CLS	Clears the screen
COPY	Copies a single file to another location
DEL (also DELETE)	Deletes one file
DIR	Displays a list of files and subdirectories in a directory
DISABLE	Disables a Windows system service or driver
DISKPART	Manages partitions on a hard disk, including adding and deleting partitions
ENABLE	Enables a Windows system service or driver
EXIT	Quits the Recovery Console and restarts the computer
EXPAND	Expands a compressed file
FIXBOOT	Writes a new boot sector to the system partition
FIXMBR	Repairs the MBR of the system partition
FORMAT	Formats a disk for use with Windows XP
HELP	Displays a list of available commands
LISTSVC	Lists all available services and drivers on the computer
LOGON	Lists the detected installations of Windows XP and prompts for administrator logon
MAP	Displays drive letter to physical device mappings
MAP ARC	Displays the Address Resolution Client (ARC) path instead of the Windows XP device path for physical device mappings
MD	Creates a directory
MKDIR	Same as MD command

MORE	Displays a text file to the screen
RD	Removes a directory
REN	Renames a single file
RENAME	Same as REN command
RMDIR	Same as RD command
SET	Used to set Recovery Console environment variables
SYSTEM_ROOT	Sets the current directory to system_root
TYPE	Displays a test file to the screen (same as MORE command)



Check Your Understanding

1. What is Recovery Console? How can it be started?
2. What are the limitations of Recovery Console?
3. What is the command LISTSVCS used for, in Recovery Console?

Troubleshooting Scenarios

Scenario1 - NTLDR is Missing

Solution: Copy the ntldr and ntdetect.com files from the XP CD to your computer.

1. Insert the Windows XP bootable CD into the computer.
2. When prompted to press any key to boot from the CD, press any key.
3. Once in the Windows XP setup menu press the 'R' key to repair Windows.
4. Log into your Windows installation by pressing the '1' key and press enter.
5. When you are prompted for your administrator password, enter that password.
6. Copy the two files to the root directory of the primary hard disk.
 - copy cdrom:\\i386\\ntldr c:\\
 - copy cdrom:\\i386\\ntdetect.com c:\\
7. Once both of these files have been successfully copied, remove the CD from the computer and reboot.

Scenario2 - Unmountable Boot Volume

Solution:

If it is the connector cable problem then replace the 40-wire cable with an 80-wire UDMA cable.

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If it's a BIOS settings problem then load the 'Fail-Safe' default settings, and then reactivate the most frequently used options such as USB Support.

If it's a damaged file system case then:-

1. Insert the Windows XP CD into the CD-ROM drive, and then restart the computer.
2. When the 'Welcome to Setup' screen appears, press R to start the Recovery Console.
3. If you have a dual-boot or multiple-boot computer, select the installation that you must access from the Recovery Console.
4. When you are prompted, type the Administrator password. If the administrator password is blank, just press ENTER.
5. At the command prompt, type `chkdsk /r`, and then press ENTER.
6. At the command prompt, type `exit`, and then press ENTER to restart your computer.

Scenario3 - HAL.Dll is missing or Invalid Boot.ini

Solution: To resolve this issue, start the computer from the Windows XP CD, start the Recovery Console, and then use the Bootcfg.exe tool to rebuild the Boot.ini file. To do so, follow these steps:

1. Insert the Windows XP CD into your CD-ROM drive, and then restart your computer.
2. When you receive the "Welcome to Setup" message, press R to start the Recovery Console.
3. If you have a dual-boot or multiple-boot computer, select the installation that you have to use from the Recovery Console.
4. When you are prompted, type the administrator password, and then press ENTER.
5. At the command prompt, type `bootcfg /list`, and then press ENTER. The entries in your current Boot.ini file appear on the screen.
6. At the command prompt, type `bootcfg /rebuild`, and then press ENTER. Follow the instructions that appear on the screen to add the Windows installations to the Boot.ini file.

Scenario 4 - Program files are missing or damaged when you boot your computer

Solution:

1. Repair the Windows XP with the help of XP operating system CD.
2. If that fails, then use Windows Upgrade option to recover the system.
3. If setup does not recognize the current installation of windows then reinstall windows completely to protect the data.

Scenario 5 - Devices or applications disabled

Solution:

1. Take the backup of registry & create a system restore point.
2. Uninstall Easy CD creator from add/remove program in control panel
3. Now search for `cdr*.sys` files in all files & folders.
4. You will see **Cdr4_2K.sys** & **Cdr4lw2k.sys**. Rename them **.old** in place of **.sys** extension.

5. Now open registry through regedit.
6. Locate the following registry subkey:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Class\{4D36E965-E325-11CE-BFC1-08002BE10318}

7. In the right pane of Registry Editor, right-click the **UpperFilters** value, and then click Delete. Click Yes on the Confirm Value Delete message.
8. Right-click the **LowerFilters** value, and then click Delete. Click Yes on the Confirm Value Delete message.
9. Locate the following registry subkey:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Cdr4_2K

10. On the Edit menu, click Delete, and then click Yes on the Confirm Key Delete message.
11. Locate the following registry subkey:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Cdralw2k

12. On the Edit menu, click Delete, and then click Yes on the Confirm Key Delete message.
13. Locate the following registry subkey:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Cdudf

14. On the Edit menu, click Delete, and then click Yes on the Confirm Key Delete message.
15. Locate the following registry subkey:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\UdfReadr

16. On the Edit menu, click Delete, and then click Yes on the Confirm Key Delete message.
17. On the File menu, click Exit.
18. Restart the computer.

Scenario 6 - Computer stops responding with a black screen when you start Windows XP

Solution:

1. Run a current virus scanning program to verify that no virus is present.
2. Repair the master boot record by using the FIXMBR command from the Windows XP Recovery Console.
3. If still issue is not fixed than Repair the operating system by the **repair** command during XP installation process.

Scenario 7 - CD/DVD drive is not recognized by Windows or other programs

Solution:

1. Open registry through regedit.
2. Locate the key:

For Vista:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Class\{4D36E965-E325-11CE-BFC1-08002BE10318}

For XP:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Class\{4D36E965-E325-11CE-BFC1-08002BE10318}

3. On the right pane delete UpperFilter.
4. On the right pane delete LowerFilter.
5. Close the Registry Editor.
6. Restart the Computer.



Check Your Understanding

1. What would you do to solve the following issue?
Error: Invalid Boot.ini
2. How do you create a restore Point?
3. How do you solve the 'black screen' error?

Week 2

Week Objectives:

By the end of this week, you will learn:

Day-1

Installing and Managing Hardware

- Understanding & Troubleshooting Ports & Connectors
- Installing Hardware
- Device Manager
- Troubleshooting General Hardware Problems
- Troubleshooting Device Drivers
- Driver Signing
- Windows File Protection

Day-2

Windows XP Diagnostic & Troubleshooting Tools

- Msconfig
- Msinfo32
- Event Logs
- Disk Defragmenter
- System File Checker
- System Restore
- Disk Cleanup
- Task Manager
- Prefetch
- File and Settings transfer wizard
- NT Backup

Day-3

Windows XP Diagnostic & Troubleshooting Tools

- Windows Help & Support Center
- Windows Services
- Windows Firewall
- Registry

Day-4

Internet Explorer & Internet Troubleshooting

- System Requirements

- Internet Explorer feature comparison
- Internet Explorer Architecture
- Internet Explorer Settings using Internet options.
- Browser Optimizations
- Browser extension and other features.
- Troubleshooting Internet Connectivity issues
- Troubleshooting secured website issues
- General troubleshooting of Internet Explorer

Day-5

Network Connectivity & Troubleshooting

- Fundamentals of Networking (Difference between workgroup & Domain)
- Understanding TCP/IP and Troubleshooting Tools
- Different ways to connect to the Internet
- Setting up Internet Connection
- Internet Connection Sharing
- Troubleshooting network connectivity
- Understanding Security Permissions
- File and Printer sharing & troubleshooting.
- Wireless Connection Types
- Understanding Group Policy
- Wireless Networking
- Setting up wireless network
- Troubleshooting Wireless Networks
- Other terminologies in wireless networking
- Wireless Equivalency Privacy (WEP)
- Wireless Zero Configuration

Day 1: Installing and Managing Hardware

Module Objectives:

By the end of this module you will understand:

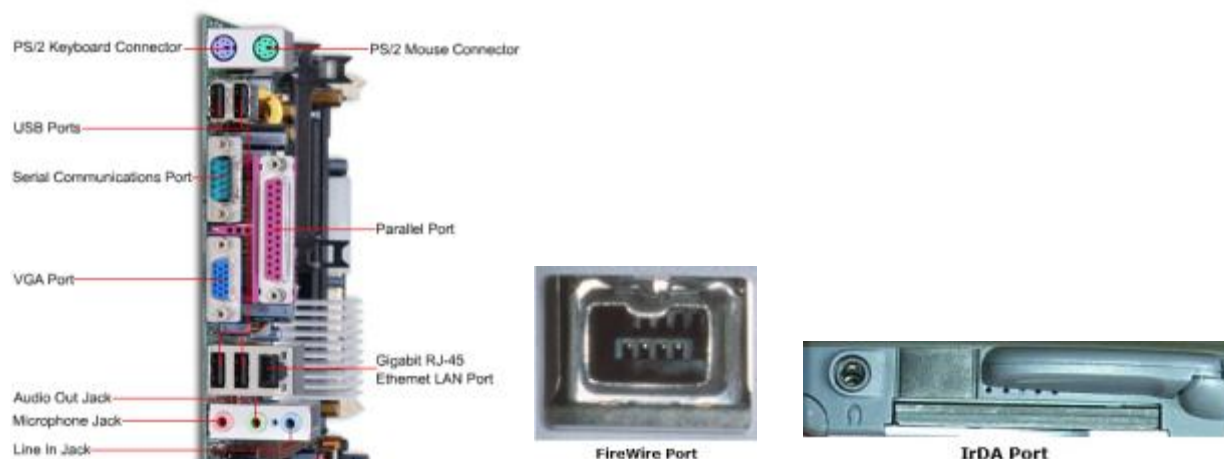
- Common ports available / issues
- Hardware Installation / Hardware Devices
- Driver Signing
- Hardware Problems & Troubleshooting
- Device Drivers Issues & troubleshooting
- Working with Device Manager
- Linear Logical Troubleshooting with Device Manager
- Windows File Protection (WFP)

Ports and Connectors

Ports and connectors on the computer allow it to communicate with different devices and peripherals attached. Ports are specialized outlets to which a plug or cable connects.

Common Ports

- **Serial:** A serial communication physical interface through which information transfers in or out one bit at a time.
- **Parallel:** These ports let computer transmit data using parallel data transmission that is several bits sent simultaneously over separate wires. PC parallel ports are usually designated LPT1, LPT2, and so on.
- **Universal Serial Bus (USB):** These ports allow you to connect a USB device and support data transfer rate of 12 Mbps.
- **Firewire (IEEE 1394):** Firewire ports are forms of a serial port that make use of FireWire technology to transfer data rapidly from one electronic device to another.
- **Infrared Data Association (IrDA):** These ports send and receive data using infrared signals. It is a wireless type port with a limited range of 5-10ft.
- **Wireless:** These ports allow transferring data without cables or wires. one access point can offer up to 300 feet of wireless coverage.



Troubleshooting Device Malfunction within an Application

Common Causes:

- The application is not properly configured to use the device.
- The device is connected and functions but is not properly configured in Windows.
- The device does not have a proper driver or other software installed.
- The device is not turned on.
- The device is not properly connected to the computer, or the cable used for the connection is damaged.
- The device itself is malfunctioning.

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To solve these issues, you can use Windows XP Help and Support Center that offers a number of troubleshooters to resolve issues with connected devices.



Check your understanding

1. List some of the common ports of computers
2. What are the common causes that might prevent a device to function properly in an application?

Installing Hardware

General Steps:

- Connect the device to the computer.
- If required, install the required device drivers that let Windows to recognize and communicate with the device.
- Test the new device to make sure that it works properly.

Steps using the Add Hardware Wizard

- Select **Printers And Other Hardware** in Control Panel
- From the See Also list, select **Add Hardware** to start the Add Hardware Wizard and click **Next**
- Select **Yes, I Have Already Connected The Hardware** and click **Next**
- From the list displayed, select the device that you want to install and click **Next**. (if the device is not listed, choose **Add A New Hardware Device**)
- Select the correct category for your type of hardware and then click **Next**
- Select the manufacturer for your device on the left. When you select it, the list on the right is updated to include only the drivers that are available for that manufacturer's devices. Select the required device and click **Next**
- If prompted, click the **Have Disk** button and provide the path to the drivers
- If prompted, click **Finish** and restart your computer



Check your understanding

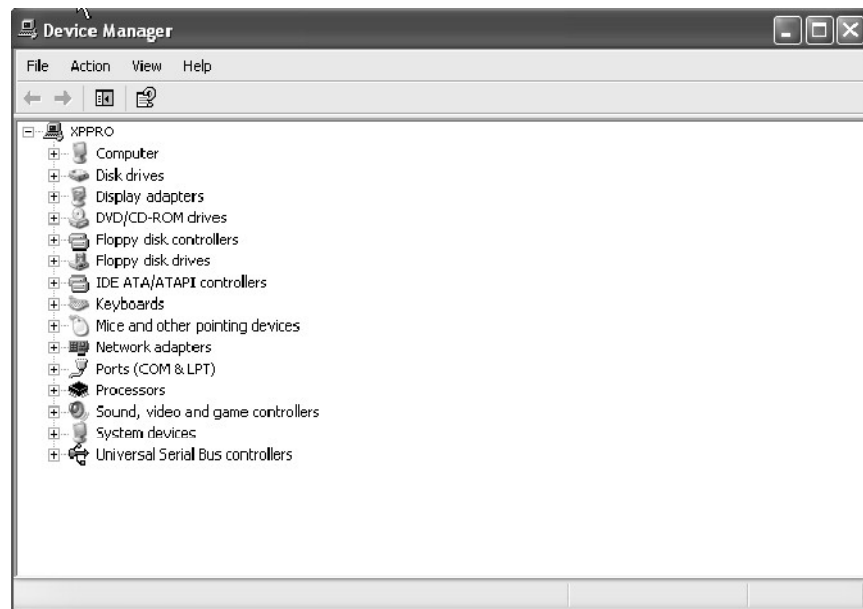
1. What are the general steps of installing a hardware?
2. How will you install a hardware using Add Hardware Wizard?

Device Manager

The device manager is a control panel applet that allows users to view and control the hardware attached to the computer. When a piece of hardware is not working, the offending hardware is highlighted for the user to deal with.

It allows performing following tasks:

- View current device settings
 - View the names of the device driver files
 - Reconfigure devices
- Update device drivers
 - Scan for hardware changes
 - Remove devices
 - Enable or disable devices
 - Troubleshoot devices



Identifying Devices

When the device doesn't work properly, the Device Manager displays the device icon's with a symbol:

- **Yellow exclamation point:** Indicates a problem with a device such as resource conflicts or Windows is unable to locate the device.
- **Red "X":** Indicates that the device is disabled.
- **Blue lowercase "i":** Indicates that the device has been configured manually. It is visible only in the Resources By Type and Resources By Connection views.
- **Yellow question mark:** Indicates that Windows cannot determine the correct device type. It generally occurs when drivers are not installed.

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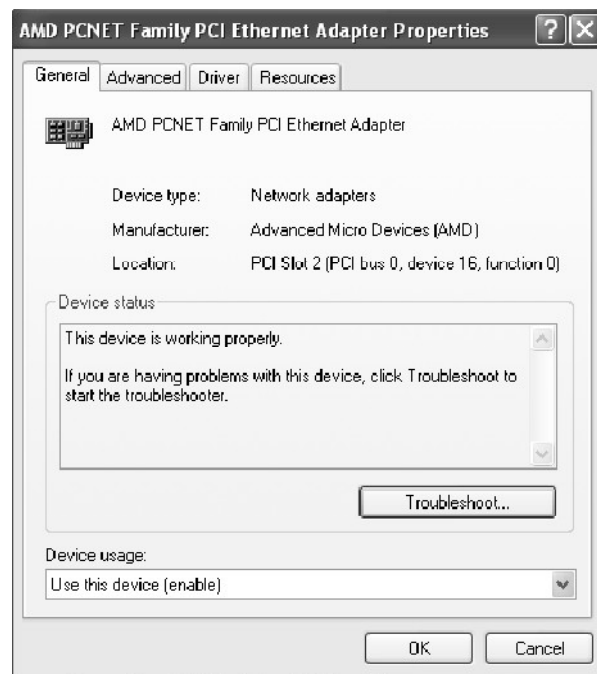
Check your understanding

1. Mention the tasks that you can perform using Device Manager.
2. Write down the indications when the following device symbols appear in Device Manager:
 - Yellow exclamation point
 - Red "X"
 - Blue lowercase "i"
 - Yellow question mark

Viewing and Modifying Device Properties

To access the Properties dialog box of any device, you can:

- Double-click the device
- Right-click the device and select **Properties**



Tabs of Properties dialog boxes

General Tab:

- Shows basic information about the device, such as device type and manufacturer

- Informs about the device working and allows access to the Windows Troubleshooter under Device Status section
- Allows enabling or disabling the device

Driver Tab:

- Shows details about the driver currently installed for the device
- Provides tools for managing the driver

Resources Tab:

- Shows and lets you configure the system resources used by the device
- Notifies if any other devices are configured to use the same resources under 'Conflicting Device List' section

Note: Windows handles the resource alignment to Plug and Play devices automatically. Non-Plug and Play devices generally require that you manually configure resource assignments, including DMA channels, I/O port address, IRQs, and memory addresses.

Device-specific tabs

Many devices feature specific tabs to view and configure device settings, where name and options vary with the type of device. For example, network adapters have a tab named Advanced, whereas modems have a tab named Modem.

How to Scan for Hardware Changes?

To force Windows to detect the plug and play devices, perform any of the below methods:

- Restart Windows and run Add Hardware wizard
- Right-click the computer name in Device Manager and select **Scan for Hardware Changes**

How to Remove and Disable Devices?

To remove the device, perform these steps:

- Right-click the device
- Select **Uninstall**
- Disconnect the device physically. (If you want to leave a Plug and Play device connected to the computer, but do not want it to be initialized, disable the device instead of removing it).

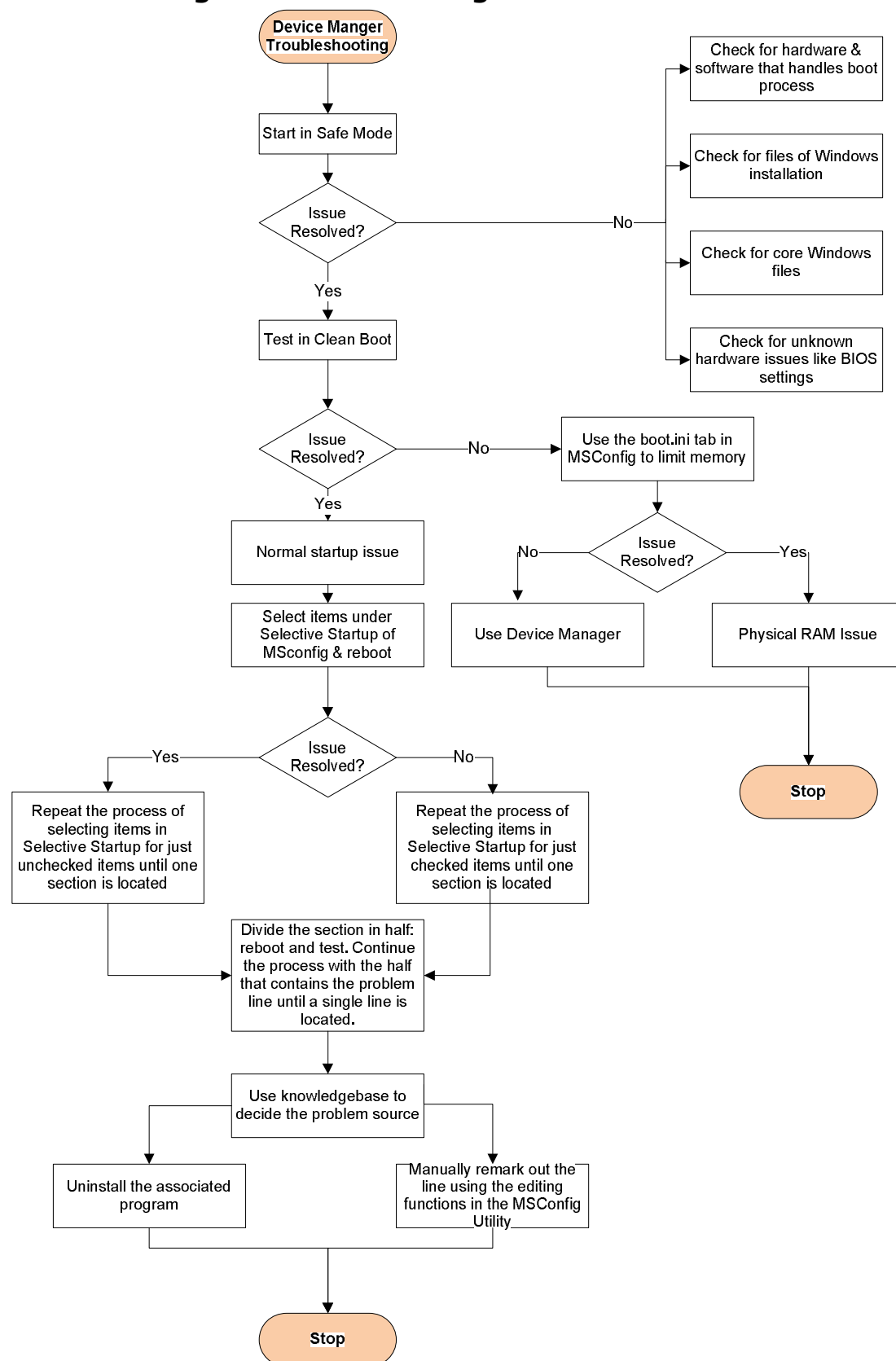
If two devices in a system are experiencing a resource conflict, disabling one of the devices will resolve the conflict. Right-click a disabled device in Device Manager and then select **Enable** to enable the device. You can also enable and disable devices using the General tab of the Properties dialog box for a device.



Check your understanding

1. List down the functions of following device tabs under Properties dialog box.
 - General tab
 - Driver tab
 - Resources tab
 - Advanced tab
2. Describe the methods to scan for hardware changes.
3. Describe the steps to remove and disable a device.

Device Manager Troubleshooting





Check your understanding

1. List down the possible causes of device malfunctioning if the issue persists in Safe mode also.
2. How will you troubleshoot if the device issue occurs in a Clean Boot but does not occur in Safe Mode?
3. How will you troubleshoot if the device issue does not occur when in a Clean Boot?

Troubleshooting General Hardware Problems

A malfunctioning device appears with either a yellow exclamation point or a red "X" icon in Device Manager. To troubleshoot, use these steps:

- Verify that the device is plugged in and turned on.
- Verify that the device is on the Hardware Compatibility List (HCL).
- If the device has been functioning for a time and suddenly stops functioning, determine whether there have been any configuration changes to the system.
 - If Yes, look for potential conflicts.
 - If No, most likely the device drivers have become corrupted and need to be updated.
 - Else, the device is physically damaged in some way and needs to be repaired/replaced.
- Hardware should have latest version of the device drivers.
- Consider shutting Windows down and turning off the computer.
- Move the device to another slot or port on the system.
- If you suspect a physical device malfunction, install a known good replacement for the device.
- If you have installed a device driver that is causing the system to crash, attempt to boot into
 - Safe Mode and update or remove the driver.
 - If unable to boot into Safe Mode, try the LKGC.
 - If both of these methods fail, use the Recovery Console

Troubleshooting Device Drivers

Windows XP drivers, which are digitally signed, are stored on the installation CD file called Driver.cab. The Setup copies it to the %SystemRoot%\Driver Cache\I386 folder during installation that is used after installation to install drivers when new hardware is detected. This process helps by ensuring that users do not have to provide the installation CD whenever drivers are installed.

Updating Drivers

Using latest drivers ensures optimum functionality and reduces the chance of an outdated device driver causing problems.

- Check the names of the actual driver files by clicking Driver Details
- Update Drivers by clicking on the **Update Driver** button on Drivers tab. Download the latest drivers from the manufacturer's website and try to install them. If it doesn't resolve the issue, try removing the device from the device manager and restart the computer. After restart Windows will detect the Plug and Play devices automatically and re-installs them. However, non plug and play devices would need to be installed again.
- Revert to a previous version of the device driver using Roll Back Driver and see if this resolves the issue.
- Remove the device from the computer by clicking on **Uninstall** and try to re-install the driver after restarting the computer



Check your understanding

1. What are the possible causes of a malfunctioning device?
2. Mention the location where Windows XP setup copies the digitally signed drivers?
3. How will you update device drivers?

Driver Signing

Digital signatures allow users who are installing Windows-based software to know whether a legitimate publisher has provided the software package. Its features are:

- Promote driver quality.
- Process of digitally signing executables and scripts.
- Guarantees that the code has not been altered or corrupted
- Notifies users if a driver has passed all Windows Hardware Quality Labs (WHQL) tests

The default mode setting is Warn mode. Signature verification options can be set by clicking the Driver Signing button under the Hardware tab of the System applet in Control Panel.

Driver signing allows for the following three responses:

- **Warn:** Warns the user that a driver has not been signed and then allows the user to determine whether the driver should be installed.
- **Block:** Prevents all unsigned drivers from being installed.
- **Ignore:** Checks for digital signatures in the background, logs the installation of unsigned drivers, and permits the installation of unsigned drivers.

- **Make This Action The System Default** Specifies that the signature verification setting applies to all users who log on to the computer.

The File Signature Verification utility (Sigverif.exe) scans a computer running Windows XP and notifies you if there are any unsigned drivers on the computer. You can start the utility by typing sigverif.exe at the command prompt or in the Run dialog box. It writes the results of the scan to a log file named Segverif.txt, which is found in the %system_root% folder

Windows File Protection (WFP)

WFP is a Windows XP technology that detects changes to protected system files and restores them to the correct version. This helps to:

- Prevent programs from replacing critical Windows system and DLL files
- Avoid file version mismatches
- Improve system stability
- Prevent problems with programs and the operating system

How it Works?

- The list of protected system files is monitored for changes
- It then determines whether the original file resides in the dllcache folder
- If it does, the incorrect version is automatically replaced and the replacement attempt is noted in the system event log. If the file does not exist in the dllcache, then the user is prompted for the original CD or network location.



Check your understanding

1. What do you understand by driver signing?
2. Name the three response options that are available in Windows on encountering an unsigned driver?
3. How will you start File Signature Verification utility?
4. What do you understand by Windows File Protection and does it work?

Day 2: Windows XP & Diagnostic Tools

Module Objectives:

By the end of this module you will understand:

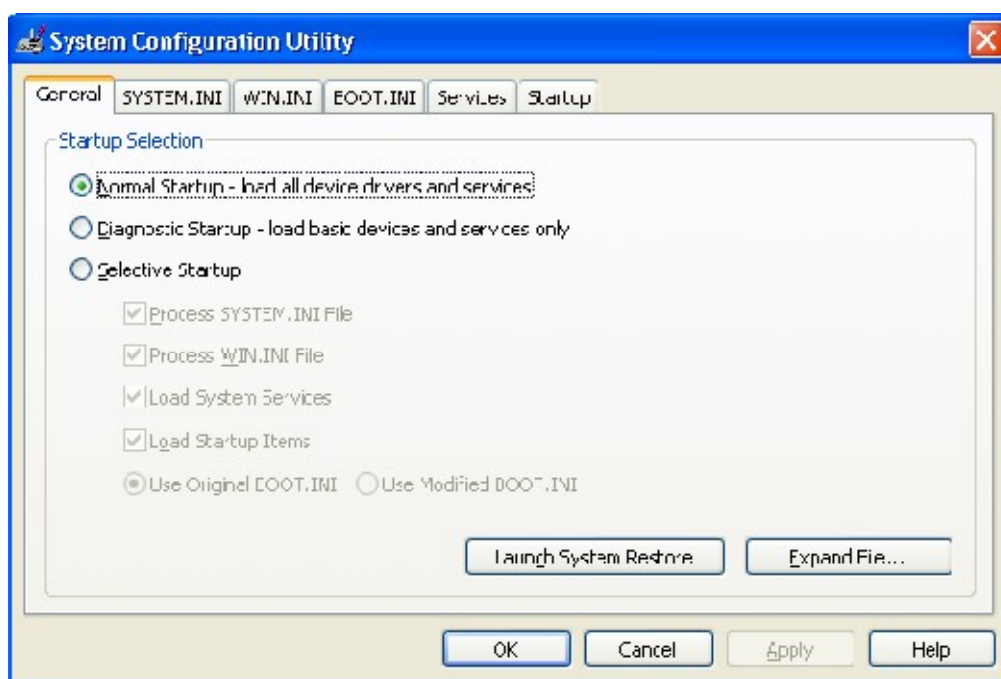
- Different Diagnostic & Troubleshooting tools available in Windows XP
 - MSCONFIG
 - MSINFO32
 - Event Viewer
 - Disk Defragmenter
 - System File Checker
 - System Restore
 - Disk Cleanup
 - Task Manager
 - Frefetch
 - File and Settings Transfer Wizard
 - NT Backup
- How to use these tools for troubleshooting

MSConfig

MSConfig, or Microsoft System Configuration Utility is a utility to troubleshoot the Windows startup process. It allows to:

- Modify which programs run at startup
- Edit certain configuration files
- Simplify controls over Windows services
- Perform Clean Boot
- Manage Windows and third party services

Use the Run dialog to launch 'msconfig' on any system with administrator access.



General tab:

Options

- Normal startup: Starts Windows in the usual manner with all device drivers and services.
- Diagnostic startup: Starts Windows with basic services and drivers only. This mode can help rule out basic Windows files as the cause of the issue.
- Selective startup: Starts Windows with basic services, drivers, and the other services and startup programs that you select.
 - Process SYSTEM.INI: Processes the settings of SYSTEM.INI tab.
 - Process WIN.INI: Processes the settings of WIN.INI tab.
 - Load System Services: Clears all items selected on the Services tab.

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- Load Startup Items: Clears all items selected on the Startup tab.
- Use Original BOOT.INI: Disables the changes made in the BOOT.INI tab.
- Use Modified BOOT.INI: Processes the settings of BOOT.INI tab



Check your understanding

1. What are the functions of Msconfig utility?
2. How will you launch Msconfig?
3. List down the functions of General tab of Msconfig utility?

SYSTEM.INI tab:

It allows selecting items configured in the System.ini file to load when starting

WIN.INI tab:

It allows selecting items configured in the Win.ini file to load when starting

BOOT.INI tab:

The tab allows to:

- Configure dual-boot computers Check all boot paths
- Set a boot path as a default
- Configure how long to wait before booting to the default

Options

- Check All Boot Paths button is Used to verify that the boot paths in the BOOT.INI file are correct.

Under Boot Options pane, you have following options:

- /SAFEBOOT gives you four sub-options for starting the computer.
 - /SAFEBOOT with MINIMAL starts the computer in Safe Mode.
 - /SAFEBOOT with NETWORK starts the computer in Safe Mode with networking support.
 - /SAFEBOOT with DSREPAIR is used to repair Directory Services on Domain Controllers.
 - /SAFEBOOT with MINIMAL (ALTERNATESHELL) starts the computer in Safe Mode with Command Prompt.
- /NOGUIBOOT starts the computer without the VGA video driver that displays graphics during the boot process and Blue Screen crash information.
- /BOOTLOG enables boot logging to help you debug and troubleshoot startup problems.

- /BASEVIDEO starts the computer using a standard VGA video driver, as opposed to the one installed for the graphics card.
- /SOS causes the driver names to be displayed when they're loaded. You can use this switch to diagnose driver-related issues.

Advanced Options

- NUMPROC: Only enables the first processors on a multiple processor system.
- MAXMEM: Specifies the maximum amount of memory that Windows can use. This switch is useful if you suspect a memory chip is defective.
- PCILock: Stops Windows from dynamically assigning IO/IRQ resources to PCI devices and leaves the devices configured by the BIOS.
- DEBUG: Debugging Mode
 - Debug port - Specifies the communications port to use for debugging. Also used with the Baud rate, Channel, and USB target name options.
 - Baud rate - Specifies the baud rate to be used for debugging. Debug port must have a COM port selected for this to be an option.
 - Channel - Specifies the 1394 communication channel to use for debugging. It does not matter which 1394 connector the cable is plugged into. Debug port must have 1394 selected for this to be an option.
 - USB target name - For USB debugging, specifies the USB target name to be used for debugging. Debug port must have USB selected for this to be an option.

Services tab:

The tab allows selecting or deselecting which services on the Windows XP computer will load during startup.

Startup tab:

The tab lets you prevent items in your startup folder from starting when you log in.



Check your understanding

1. List down the functions of following Msconfig tabs:
 - System.ini
 - Win.ini
 - Boot.ini
 - Services
 - Startup
2. What is the function of 'Check All Boot Paths' button in Boot,ini tab
3. Explain the functions of following options in Boot options pane of Boot.ini tab:
 - /SAFEBOOT

- /NOGUIBOOT
 - /BOOTLOG
 - /BASEVIDEO
 - /SOS
4. Explain the functions of following options in Advanced options of Boot.ini tab:
- NUMPROC
 - MAXMEM
 - PCILock
 - Debug

Clean Boot Troubleshooting

Clean boot troubleshooting (also called safe mode troubleshooting) is a fundamental means of diagnosing errors on Windows systems. First you determine if the problem disappears when booted into safe mode. If so, use msconfig to turn off all startup items and see if the problem is still gone. If these two criteria are met, the problem can be localized using the clean boot method. For this we need to keep asking ourselves these questions:

- When does the issue happen?
- When does the issue go away?
- What is the difference?

Let's assume that the customer's issue did not appear in Safe Mode. Already we have narrowed the field to the differences in Windows loading in Safe Mode and Windows loading in Normal Mode. Now we want to limit it further by using the System Configuration Utility and doing a Clean Boot. This means limiting the amount of applications and processes that load when Windows loads in normal mode. This differs with Safe Mode in that device drivers, for the most part, are still loaded when performing a clean boot allowing us to test devices such as the sound card, modem and USB devices.

Troubleshooting using MSConfig

You need to test if the customer's issue will remain when Windows performs a Clean Boot. To do so, perform these steps:

1. From the General Tab, bullet the third item down called Selective Startup. This will allow us access to the check boxes below Selective Startup.
2. Starting with the box next to the line Process the System.ini file, uncheck every box except for **Load System Services**.
3. Click the **Services** tab and check the box in the lower left hand of the window labeled **Hide All Microsoft Services**.
4. Uncheck any remaining services listed in the **Services** tab.
5. Click the **General** tab and ensure it looks like the figure below.
6. Click the **OK** Button at the bottom of the System Configuration Utility.
7. Click **Restart** when prompted

The computer will shut down and then restart loading device drivers and default Windows XP services, but almost no third party applications or processes. You will need to warn the customer that the Desktop will be set to 16-color mode.

The Clean Boot does not Work

If the issue is still present, then we can now narrow the answers to those three questions:

Q: When does the issue happen?

A: The issue happens in a Clean Boot

Q: When does the issue go away?

A: The issue doesn't happen in Safe Mode

Q: What is the difference?

A: The difference is in the device drivers that are loaded and the run once keys, which are loaded in a Clean Boot, but not in Safe Mode.

To work with devices and device drivers, we have two different areas.

The first area in which device settings can be altered for troubleshooting purposes is the Boot.ini tab. Display, physical memory, and device resource allocation can all be controlled with switches in the boot.ini.

If the issue remains with the computer in Clean Boot and the other device troubleshooting switches enabled in turn, then you will need to focus the troubleshooting on the Device Manager.

It Works in a Clean Boot

If the issue does not present itself, we can now answer those earlier questions in this way:

Q: When does the issue happen?

A: The issue doesn't happen in Standard Mode.

Q: When does the issue go away?

A: The issue doesn't happen in a Clean Boot.

Q: What is the difference?

A: The difference is everything that is controlled by the MSConfig tool.

We can now start limiting the field further by using Linear Logical Troubleshooting and the System Configuration Utility.



Check your understanding

1. What do you understand by Clean Boot troubleshooting?

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2. How will you troubleshoot a Windows problem using Msconfig?

The System Configuration Utility (MSConfig) Explained

The next step is to narrow our focus to one tab and the configuration items it controls.

Selective Startup

Our goal in using Linear Logical Troubleshooting is to eliminate possible areas of interest until we are left with the root cause of the customer's issue. Up until now, we have narrowed the focus to those items controlled by the System Configuration Utility. Now we want to narrow our investigation to one single tab within MSConfig.

To do this, we will again use the General Tab to control the boot process. Now the computer should still be in a clean boot, meaning we have Selective Startup bulleted and loading only Microsoft services.

Each of those items under Selective Startup corresponds to a tab across the top except the boot.ini tab.

- When a box is unchecked, all the items under that tab are unchecked.
- When a box is white with a check in it, every item under that tab is checked.
- If a box is white with a filled box in it, the tab has some checked items and some unchecked items.

Check everything but the System.ini and the Startup Group

We know that when every item is checked (Normal Mode) the issue happens and when every item is unchecked the issue goes away. We want to cut our field of investigation in half by checking a couple of the boxes under Selective Startup, rebooting and testing for the issue. The most common items to eliminate are the Win.ini and the System.ini. To do this:

1. From the General Tab, with the computer in Selective Startup and all the boxes unchecked, place checks next to Win.ini and System.ini.
2. Click the **OK** Button at the bottom of the System Configuration Tab.
3. Click **Restart** when prompted to reboot the computer

The computer will now reboot in selective startup, loading the device drivers from the Device Manager and loading information and processes from the Win.ini and System.ini. The majority of the programs and processes are still not going to load, since this information is stored in the two remaining tabs, Services and Startup Group.

If the issue is still not present after the Selective Startup, then we can answer those three questions like this:

Q: When does the issue happen?

A: The issue happens in Normal Mode.

Q: When does the issue go away?

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A: The issue doesn't happen when the Startup Group is unchecked and 3rd-party Services are not loaded.

Q: What is the difference?

A: The difference is the Startup Group and 3rd-party Services.

If the issue is still present when we are only loading the Win.ini and System.ini, then we know the problem is loading from one of those sections.



Check your understanding

1. How will you use Selective Startup while Linear Logical troubleshooting of a problem?

One Section at a Time

We are going to repeat the process above, narrowing the test until we can boot Windows XP with only one section unchecked and the issue not appearing. Once we have found the tab or section that, when removed, resolves the issue, we can then focus on just that area. Now we need to take a look at each section with the idea it is the area of trouble.

Focus on Startup Tab: Assume we have narrowed down the cause of our customer's issue to the Startup tab. This means we can start working with that tab alone. The computer should be set up as follows:

1. We are in Selective Startup within the MSConfig Utility.
2. Under Selective Startup, only Load Startup Group Items is unchecked.
3. We have clicked on the Startup Tab and have the list of programs and processes to work with in front of us.

Narrow Our Field

So we have a list of items that load from the Startup tab. This list includes processes and programs native to Windows XP and 3rd-party programs that load on boot. These can load from the registry or the Startup folder. The Support Professional must narrow down this list, using Linear Logical Troubleshooting, to the one single item that causes the customer's issue.

To do this, we need to start checking boxes and rebooting. The easiest way is to divide the list in half, checking only the items in the first half of the list and rebooting the computer. If the issue returns, you now know the problem was with one of the items in the first half of the list. If the issue goes away, then you know the problem was with an item in the second half of the list.

Again, here is what you are going to do:

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1. Place check marks next to all the items in the first half of the list.
2. Click OK and reboot the computer when prompted.
3. Test for the customer's issue

1. If the issue is still present then the problem is with an item in the first half of the list in the Startup tab.
2. If the issue is gone, then the problem is with an item in the second half.

Now continue to narrow the field. Whatever section contains the issue, check half of those items and leave the rest unchecked and reboot. Eventually you will find one single item that when checked causes the issue. You will want to verify that you have correctly identified the cause:

1. From the **General** tab of the System Configuration Utility, place a bullet next to Normal Startup. This will cause all the items below Selective Startup to be checked and grayed out.
2. Click the **Startup** tab and you will see check marks next to every item.
3. Uncheck the one item that you determined was the cause of our problem.
4. Click **OK** at the bottom and Restart to reboot when prompted.

The computer should reboot and the issue should still not present itself. You have isolated the root cause of the issue.

Now What?

The troubleshooting work is done. You have located the one item that causes the issue. Now you can work on resolving the issue for your customer. You can search and use KB for this purpose.

Do not leave the Customer in Selective Startup

Leaving the item unchecked is not an option. Microsoft Support does not recommend customers run in Selective Startup. If at all possible, we need to either remove the item from the list or provide information to the customer on how to contact the companies that support the issue.

Removing Items

It may become necessary to remove items from the Startup Group, preventing them from loading when the computer is placed back in Normal Startup. When possible, 3rd Party software should be uninstalled rather than removing the item from the Startup Group manually.




Check your understanding

1. Explain the use of Startup tab in Linear Logical Troubleshooting of a problem.

Focus on the Win.ini and System.ini Tabs

The System.ini and Win.ini are places from which items can load to cause customer issues. The System.ini may load legacy driver files and items for 16-bit application support, while the Win.ini commonly loads driver files for multimedia support and 16-bit application support. For this section, let us assume that we have narrowed the field down to the System.ini tab within the System Configuration Utility.

The Computer should be setup as follows:

1. We are in Selective Startup within the MSConfig Utility.
2. Under Selective Startup, only the Process System.ini file is unchecked.
3. We have clicked on the  and have the contents of the file displayed in front of us.

Narrow our Field

As when we worked with the Startup Tab, check about half the items under the System.ini Tab and click OK to reboot the computer. Test the issue and see if it still occurs. With several reboots, we should be able to isolate the single line within the System.ini tab that is causing the issue.

Here is the order again:

1. Leave half the sections checked and the other half unchecked.
2. Click the **OK** button and reboot the computer.
 - a. If the issue is still present, then you know the problem is in the checked half. Start the process again by unchecking half of these and rebooting.
 - b. If the issue is gone then we know the issue is located in the unchecked half. Continue the process by checking half of the unchecked items and rebooting.

Eventually you will find the specific section that contains the problem line. You will now want to apply the divide and conquer process to that specific section. Check half the items in that section; reboot and test; cut by half and test again. This process will lead you to the specific line that is the cause of the issue.

Now What?

So when we have narrowed the cause to a single line in the System.ini section, what is the next step?

Knowledgebase

Place the line from the System.ini Tab into the search windows of KB. We are looking for an article that has dealt with this line before.

KB or the customer may recognize this line as belonging to a 3rd-party application. If the line was installed by a 3rd-party vendor, then they are the best source for information on resolving the customer's issue.

Do not leave the Customer in Selective Startup

Leaving the item unchecked is not an option. Microsoft Support does not recommend customers run in Selective Startup. If at all possible, we need to either remove the item from the list or provide information to the customer on how to contact the companies that support this issue.

Removing Items

It may become necessary to remove items from the System.ini tab. When possible, items that belong to 3rd-party vendors should be uninstalled rather than removing the item from the System.ini file manually. If this is not possible, you will want to remark out the line rather than permanently deleting it. By remarking the line, we will place a semi-colon in front of it, signaling to the computer that this line is to be ignored.

To remark out a line from the System.ini file using the MSConfig Utility:

1. Click the line we need to remark out so it is highlighted.
2. Check the box next to the item. Click the **Edit** button at the bottom right corner of the System.ini Tab. This will place a box around the line.
3. Click the **Home** key on the keyboard to place the cursor at the front of the line. You can also use the mouse to place the cursor in front.
4. Type in a Semi-Colon in front of the line and hit the **Enter** Key. This will remark out the line so that it is not processed by Windows XP at startup.
5. Reboot the computer. The issue should be resolved since the problem line is no longer loading.



Check your understanding

1. Explain the use of Win.ini and System.ini tabs in Linear Logical Troubleshooting of a problem.

Focus on the Services Tab

The Services tab is very similar to the Startup tab. There are no editing buttons on this tab and when a problem is located here, the resolution can be more difficult since the majority of these files are from the Windows operating system.

The computer should be setup as follows:

1. We are in Selective Startup within the MSConfig Utility.
2. Under Selective Startup, only the Load Services line is different, containing a filled box.
3. We have clicked on the Services Tab and have the contents of the file displayed in front of us.

Narrow our Field

We will again want to narrow our field by checking half the items, rebooting and testing for the issue. This is the same process we have learned for the other tabs.

Now What?

When the item within the Services tab that is causing the issue has been located, it is best to refer your customer to the vendor of the software in question. Unlike 3rd-party items loading from the Startup group, most applications will definitely not function properly if a needed service is disabled. Disabling a single service using the MSConfig utility can cause system instability by causing an application loading at startup to fail. While references to loading a service are present in the Windows registry, it is not recommended to remove the reference as a fix to the issue.

Microsoft Services as the Cause

Occasionally, a service loaded by Windows XP to provide support for a particular functionality may be the cause of the issue. Usually this is due to a conflict with another service or item loading at startup, but a service's files or registry entries can become corrupt as well. If this is suspected, before preventing all services, including Microsoft services, from loading using the MSConfig utility, determine if using the System Restore utility is a valid troubleshooting step. By disabling Microsoft services, especially the system restore service, all restore points will be removed from the system. If the issue began to occur after a particular point in time, using the System Restore utility is a valid troubleshooting step at this time. Also, keep in mind that by preventing Microsoft services from loading, various functionalities within Windows XP will be lost.



Check your understanding

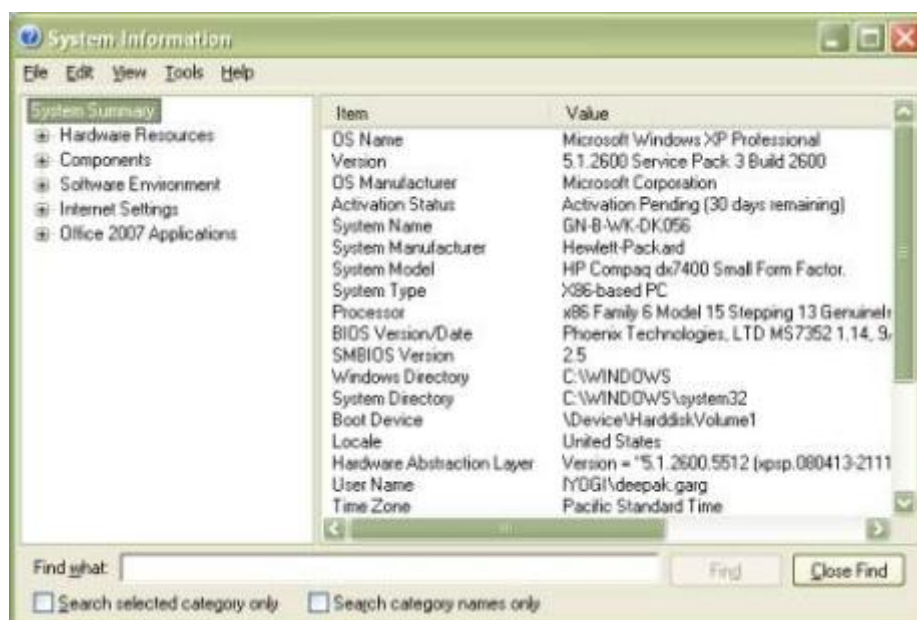
1. Explain the use of Services tab in Linear Logical Troubleshooting of a problem.

MSinfo32 (System Information Utility)

System Information collects system information, such as devices, or device drivers, and provides a menu for displaying the associated system topics. You can use System Information to diagnose computer issues. For example, if you are having display issues, you can use System Information to determine what display adapter is installed on your computer, and to view the status of its drivers.

To run the utility:

- Type **msinfo32** from Run dialog box and press **ENTER**
OR
- Click **Start > Programs > Accessories > System Tools > System Information**



From the left pane, expand each of the trees to view the available data.

1. **Hardware Resources** View and determine conflicts between hardware devices and see interrupt requests (IRQs), memory, and more.
2. **Components** View information about multimedia hardware, sound and display devices, modems, storage, printing devices, and more.
3. **Software Environment** View information about system drivers, print jobs, network connections, running tasks, services, and more.
4. **Internet Settings** View information about Internet settings, including the browser version and type, content and cache settings, and more.
5. **Applications** View installed applications and information logged during use of the applications.

Systeminfo.exe is a new command line tool that makes a subset of this information available. This can be useful for general data gathering on a machine. Significant information includes:

- Operating System Version
- System manufacturer and model information
- Page File size, available space and location(s)
- Hotfixes installed
- Network adapters, with IP configuration



Check your understanding

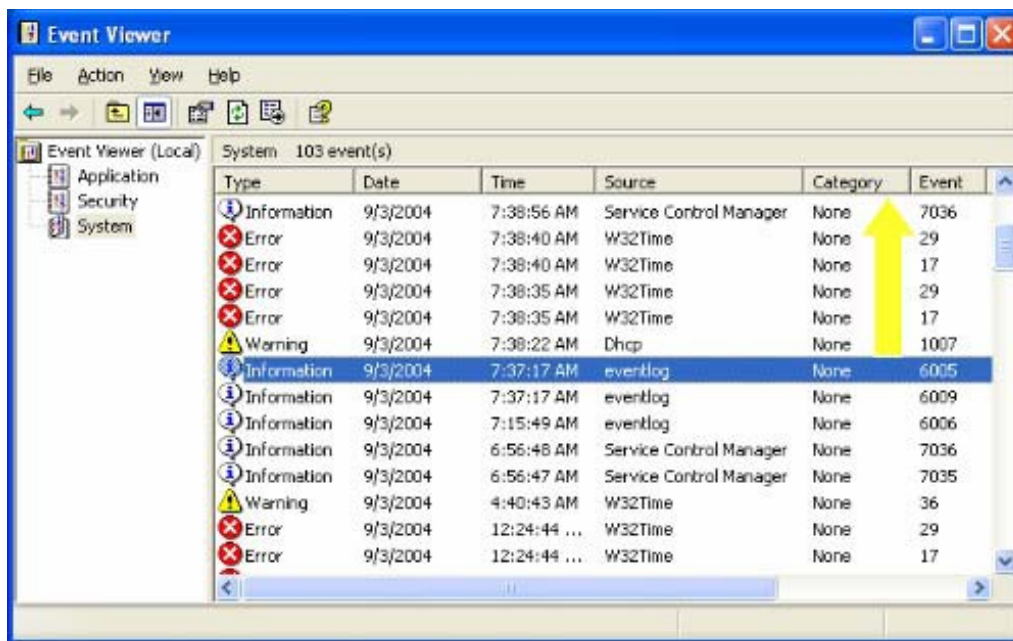
1. What is MSinfo32 utility and how can you access it?
2. Name the system options available in MSinfo32 utility?
3. What is the use of Systeminfo.exe command line tool?

Event Viewer

Event Viewer lets administrators and users view the event logs on a local or remote machine. Applications and operating system components can make use of this centralized log service to report events that have taken place, such as a failure to start a component or complete an action. It can be used to:

- Maintain logs about program, security, and system events on your computer.
- View and manage the event logs, gather information about hardware and software problems
- Monitor Windows security events

To start Event Viewer, click Start > Control Panel > Performance and Maintenance > Administrative Tools, and then double-click Event Viewer or run 'Eventvwr' from Run dialog box.



Event Logs

An event is any significant occurrence in the system or in a program that requires users to be notified, or an entry added to a log. The system defines three log sources:

1. **System:** Contains events logged by Windows XP system components
2. **Application:** Contains events logged by programs.
3. **Security:** Records events such as valid and invalid logon attempts, as well as events related to resource use, such as the creating, opening, or deleting of files

Event Viewer will not populate any events if the event logging service is not running and all these event categories have .evt files responsible for specific category of events. The location of .evt files is: c:\windows\system32\Config

The event logs record five types of events:

Event type	Description
Error	A significant problem, such as loss of data or loss of functionality.
Warning	An event that is not necessarily significant, but may indicate a possible future problem.
Information	An event that describes the successful operation of an application, driver, or service.
Success Audit	An audited security access attempt that succeeds.
Failure Audit	An audited security access attempt that fails.

Troubleshooting using Event Logs

When an issue doesn't have clear resolution then one can check the event logs for errors and warnings. To do so, perform these steps:

1. Open Event Viewer snap-in
2. In the console tree, expand **Event Viewer**, and then click the log that contains the event that you want to view
3. In the details pane, double-click the event that you want to view. The **Event Properties** dialog box containing header information and a description of the event is displayed.
4. To copy the details of the event, click the **Copy** button, then open a new document in the program in which you want to paste the event, and then click **Paste** on the **Edit** menu
5. To view the description of the previous or next event, click the **UP ARROW** or **DOWN ARROW**

Now the even ID and source can be used to search the exact problem at the following Microsoft website.

http://www.microsoft.com/technet/support/ee/ee_advanced.aspx



Check your understanding

1. What is an event?
2. What are the main types of event logs?
3. What is the default location of event files?
4. List the types of events that event logs can record.
5. Describe the process of using event logs to troubleshoot a Windows issue.

Disk Defragmenter

Fragmentation happens to a hard disk over time as you save, change, or delete files. The changes that you save to a file are often stored at a location on the hard disk that's different from the original file. Additional changes are saved to even more locations. Over time, both the file and the hard disk itself become fragmented, and your computer slows down as it has to look in many different places to open a file.

Disk Defragmenter is a tool that rearranges the data on your hard disk and reunites fragmented files so your computer can run more efficiently. The purpose is to optimize the

time it takes to read and write files to/from the disk by minimizing head travel time and maximizing the transfer rate.

To run the utility, perform any of the below methods:

- Click **Start >All Programs >Accessories >System Tools >Disk Defragmenter**
OR
- Run **dfmg.msc** from Run dialog box



Check your understanding

1. What do you understand by disk fragmentation?
2. What is Disk Defragmenter?
3. How can you access Disk Defragmenter?

System File Checker

System File Checker (SFC) is a command-line utility that allows a technician or user to determine whether any protected system files are missing. Missing system files can cause problems with the boot process or problems when operating system components are opened.

To run the utility, perform any of the below methods:

- Click **Start>Programs> Accessories> System Tools** and click **System Information**, and then click **System File Checker** on the **Tools** menu
OR
- Run **SFC /scannow** from command-prompt

Prefetch

When you start the computer, Windows keeps track of the way your computer starts and which programs you commonly open and saves this information as a number of small files in the Prefetch folder. The next time you turn on your computer, Windows refers to these files to help speed the start process. Its default path is C:/WINDOWS/prefetch and there's no need to delete it or empty its contents.

System Restore

System Restore actively monitors system file changes and some application file changes in real time to record or store previous versions before the changes occurred. If users experience system failure or another significant problem, they can use System Restore from

Safe Mode or Normal Mode to go back to a previous system state, restoring optimal system functionality.

To access the tool, click **Start>Programs>Accessories>System Tools>System Restore**



A Restore Point is a snapshot of system files and registry settings. The data in a Restore Point includes:

- Registry settings
- Profiles (local only—roaming user profiles not impacted by restore)
- COM+ Database (DB)
- WFP cache
- WMI DB
- Internet Information Server (IIS) Metabase
- Files with extensions listed in the <include> portion of the Monitored File Extensions list in the System Restore section of the Platform Software Development Kit (SDK)



Check your understanding

1. What is System File Checker and how will you access it?
2. What do you understand by Prefetch folder and what is its default path?
3. How does the System Restore work?
4. What are the contents of a restore point?

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Disk Cleanup

The Disk Cleanup tool helps you free up space on your hard disk by searching your disk for files that you can safely delete. You can choose to delete some or all of the files. Different file categories that Disk Cleanup targets when performing the initial disk analysis are:

- Compression of old files
- Temporary Internet files
- Temporary Windows file
- Downloaded Program files
- Recycle Bin
- Removal of unused applications or optional Windows components
- Setup Log files
- Offline files

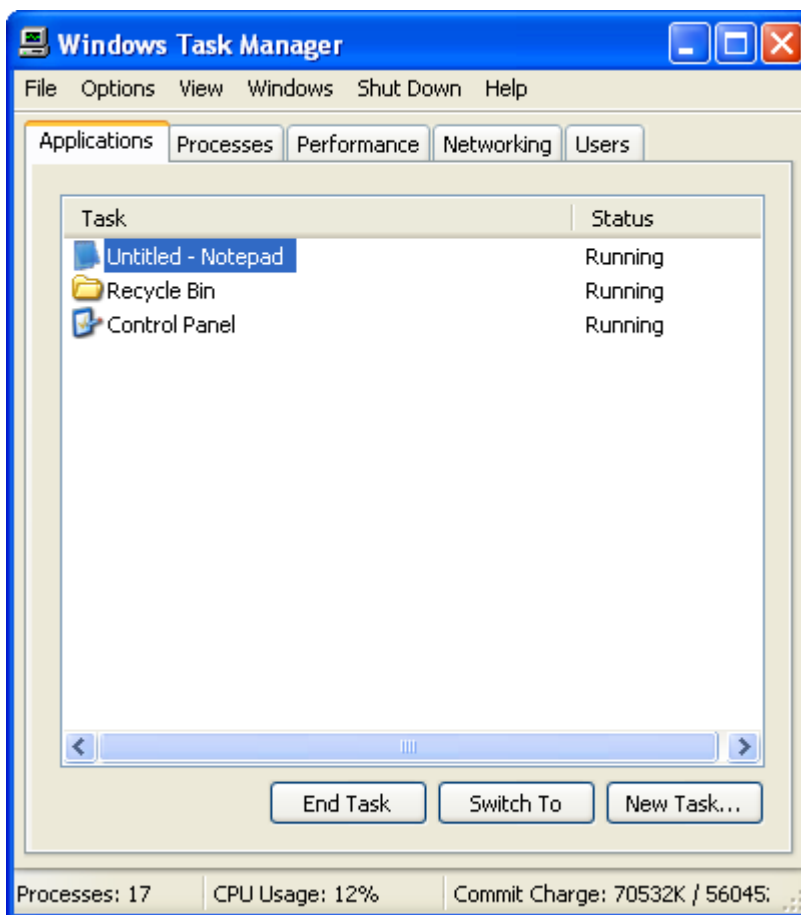
To access it, run **cleanmgr** from Run dialog box.



Task Manager

Task Manager is an application that provides detailed information about computer performance and running applications, processes and CPU usage, commit charge and memory information, network activity and statistics, logged-in users, and system services. The Task Manager can also be used to set process priorities, processor affinity, forcibly terminate processes, and shut down, restart, hibernate or log off from Windows.

To open task manager, right Click the taskbar and select **Task Manager**, or use the keyboard shortcut **Ctrl+ Alt+ Del** or **Ctrl + Shift + Esc**;



Applications Tab: It shows a list of programs currently running.

- Right-clicking any of the applications in the list allows switching to that application, ending the application, and showing the process on the Processes tab that is associated with the application.
- Choosing to **End Task** from the Applications tab causes a request to be sent to the application for it to terminate.

Processes Tab: It shows a list of all running processes on the system.

- Right-clicking a process in the list allows changing the priority the process has, setting processor affinity (setting which CPU(s) the process can execute on), and allows the process to be ended.
- Choosing to **End Process** will cause Windows to immediately kill the process. Choosing to **end Process Tree** will cause Windows to immediately kill the process, as well as all processes directly or indirectly started by that process.

Performance Tab: It shows overall statistics about the systems performance, most notably the overall amount of CPU usage and how much memory is being used. A chart of recent usage for both of these values is shown. Details about specific areas of memory are also shown.

- There is an option to break the CPU usage graph into two sections; kernel mode time and user mode time that can be turned on by choosing Show kernel times from the View menu.

Networking Tab: It shows the statistics related to each of the network adapters present in the computer. By default the adapter name, percentage of network utilization, link speed and state of the network adapter are shown, along with a chart of recent activity. More options can be shown by choosing **Select columns...** from the **View** menu.

Users Tab: It shows all users that currently have a session on the computer. Users can be disconnected or logged off from this tab.



Check your understanding

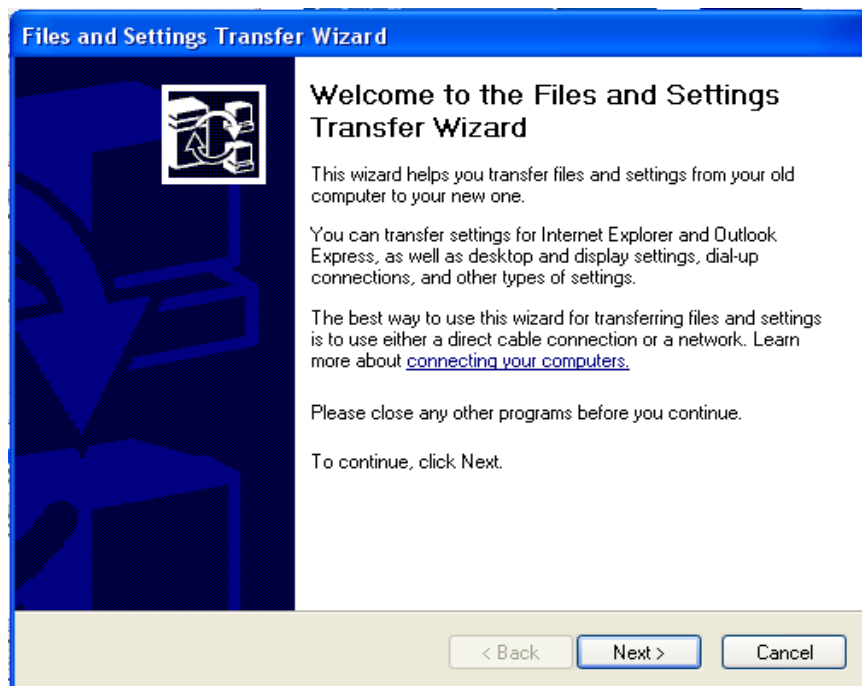
1. What is Disk Cleanup utility and how does it work?
2. Name the type of files targeted by Disk Cleanup Utility?
3. What is Task Manager and how will you access it?
4. Explain the functions of following Task manager tabs:
 - Applications
 - Processes
 - Performance
 - Networking
 - Users

File & Settings Transfer Wizard

The Files and Settings Transfer Wizard enables you to transfer the user's files, folders, and settings to a new computer or to a clean installation of Windows XP on an existing computer. The wizard method is most commonly used when an end user is responsible for upgrading their own operating systems. The transferred data may be saved to another

computer over a direct cable connection, a server or removable media such as a Zip disk or a compact disc.

To access it, Click **Start>All Programs>Accessories>System Tools>File and Settings Transfer Wizard**;



The tool can migrate following type of data:

- **Appearance:** Wallpaper, colors, sounds, and the location of the taskbar
- **Action:** Key repeat rate, whether double-clicking opens a folder in a new window or the same window and whether double-click or single-click an item to open it.
- **Internet:** Settings that let you connect to the Internet, browser settings such as your home page URL, favorites or bookmarks, cookies, security settings, dial-up connections, and proxy settings.
- **Mail:** Mail server information, your signature file, views, mail rules, local mail, and contacts

Steps to collect the data:

1. Open the **File & Settings Transfer** wizard and click **Next**
2. Select old computer then click **Next**.
3. Select the transfer method like- floppy, direct cable connection, some other drive.
4. Select what you want to transfer like- only settings, only file or both.
5. Select custom file settings and choose the files you wish to transfer.
6. File transfer will display a warning dialogue that you need to install the application before installing the system state (File Transfer backup) on the new computer.
7. File transfer wizard will start collecting the data.
8. Click **Finish** to complete the task.

Steps to transfer the data:

- Start the Wizard on the target computer and choose **New computer** to restore the saved user state.
- Select the data source to transfer the file.
- The wizard then transfers the saved user state data to the new computer
- User need to click **finish** after file transfer is complete and need to log off and log on to get the new settings

**Check your understanding**

1. What is File & Settings Transfer Wizard and how will you access it?
2. What all data the File & Settings Transfer Wizard can migrate?
3. Describe the process of migrating data by using File & Settings Transfer Wizard?

NTBackup

NTBackup is the built-in backup application that allows backing up the data to tape, ZIP drives, floppy disks, and hard drives. It also features integration with Task Scheduler and has several command line switches for scheduled automated backups.

To start backup:

- Go to **Start > All Programs > Accessories > System Tools > Backup**
OR
- Click **Start>Run>** Type **NTBackup**

Types of Backup:

Copy backup: Copies all selected files but does not mark each file as having been backed up. The archive attribute is not cleared.

Daily backup: Copies all selected files that have been modified the day the daily backup is performed. The archive attribute is not cleared.

Differential backup: Copies all files created or changed since the last normal or incremental backup. The archive attribute is not cleared.

Incremental backup: Backs up only those files created or changed since the last normal or incremental backup. It marks files as having been backed up. It clears the archive attribute.

Normal backup: Copies all selected files and marks each file as having been backed up. It clears the archive attribute. You usually perform a normal backup the first time you create a backup set.



Check your understanding

1. What is Windows NTBackup utility and how will you access it?
2. What are different types of backups supported by NTbackup?

Day3: Windows XP & Diagnostic Tools

Module Objectives:

By the end of this module you will understand:

- Windows Help & Support Center
- Windows Update
- Windows Services
- Windows Firewall
- Windows Registry

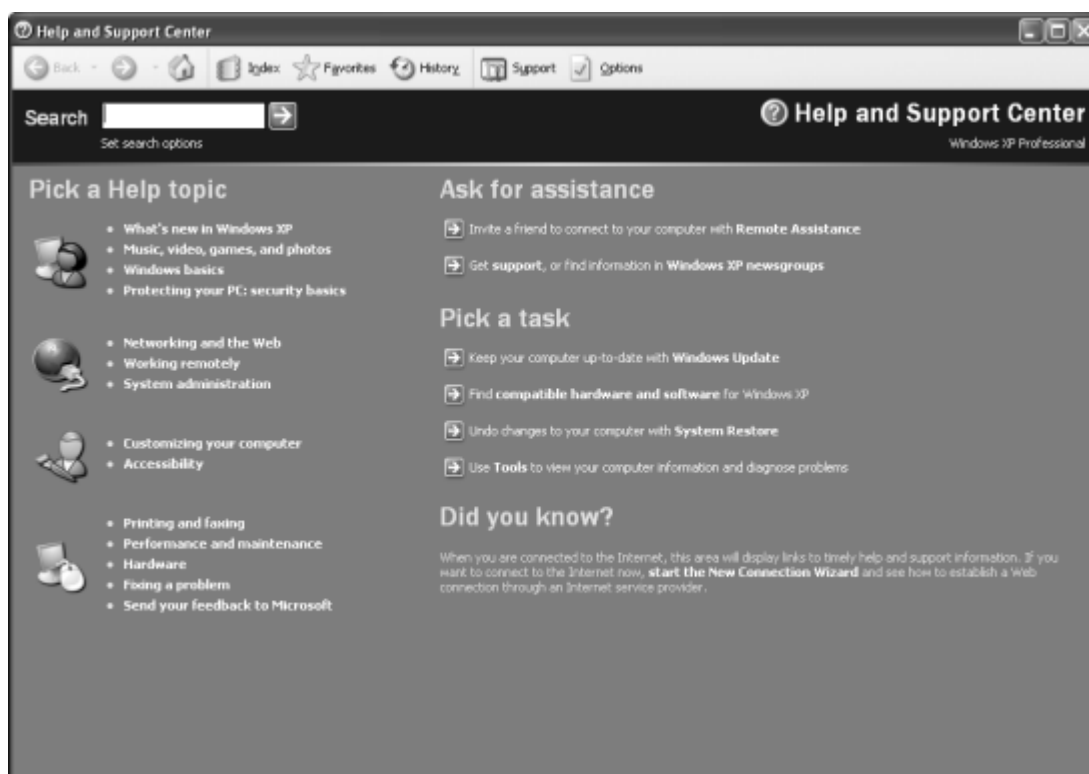
Help & Support Center

Help & Support Center is an integrated help and assistance tool that provides simple click access to built-in product information, preventative care and maintenance assistance, and web links to online support and technical assistance.

You can use Help and Support Center to:

- Get Online Help via Search, the Index, or the table of contents
- Get Support
- Get Help with Remote Assistance
- Explore Windows Newsgroups
- Optimize Compatibility of Applications, Drivers, and Hardware
- Use Windows Update
- Use Windows Tools

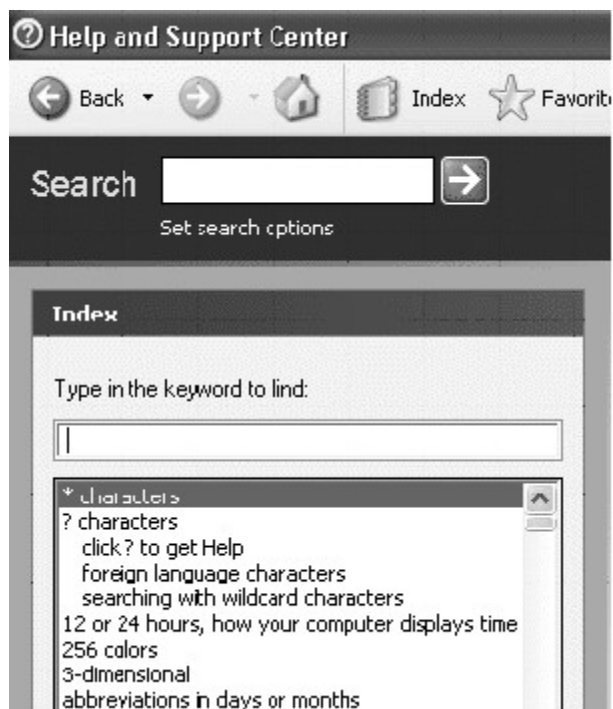
To access the tool, click **Start**, and then **Help and Support**.



Get Online Help:

It's easy to navigate through Help topics from the Help and Support Center home page. Click **Home** or **Index** on the navigation bar to view the table of contents or index, or type a word or words into the Search box to find what you need.

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Using the index in online Help

Using Search

Know the exact term you need help with? Just enter one or more keywords into the Search box at the upper left of the Help and Support home page.

- Suggested Topics. Provides the most relevant content based on your keywords. Examples of the types of content include:
 - Pick a Task. Shows links to detailed procedures to complete a task.
 - Overviews, Articles and Tutorials. Provides links to articles that help you gain a general understanding of the topic.
- Full-text Search Matches. Returns content that may contain less relevant prominent matches to your keywords.
- Microsoft Knowledge Base. Contains in-depth articles and technical support information from Microsoft Product Support Services. You need to be connected to the Internet in order for these search results to appear.



Check your understanding

1. What is Help & Support Center and how will you access it?
2. How can Online Help feature of Help & Support Center be used?

Using Support:

The Support page in the Help and Support Center offers a variety of ways for you to get help, including over the Internet. To open the Support page, click the Support icon at the top of the Help and Support Center.

Getting Assistance Online

Using Remote Assistance, you can

- Allow someone you know to connect to your computer over the Internet, chat with you, and observe your computer screen as you work.
- Visit a support newsgroup to find a peer to help you figure out the best way to use Microsoft products
- Get access to assistance from your computer manufacturer, and if you acquired Windows XP separately, from Microsoft

Getting Assistance Offline

If you're not connected to the Internet, you can use other tools to help solve problems:

- My Computer Information displays information about the software and hardware you currently have installed.
- Advanced System Information and System Configuration Utility provide technical details that support professionals can use to help solve problems.

Getting Help with Remote Assistance

Remote Assistance is a convenient way for a distant friend to connect to your computer from another computer running a compatible operating system, such as Microsoft Windows XP, and walk you through your solution.

By following the steps in Remote Assistance, you can use Windows Messenger Service or an e-mail message to invite a friend, coworker, or support professional to connect to your computer.

To start Remote Assistance:

1. Click **Start**, and then click **Help and Support**.
2. Click **Invite a friend to Connect to Your Computer with Remote Assistance**



Check your understanding

1. What is the function of Support Page of Help and Support Center?
2. Mention the functions of online assistance option of Support page.
3. Mention the functions of offline assistance option of Support page.

4. What is Remote Assistance in Help & Support Center and how can you access the tool?

Exploring Windows Newsgroups:

Windows XP newsgroups provide a community of users and experts who may be able to answer your questions. Links to Windows newsgroups in the Help and Support Center take you to the Windows XP Newsgroups page at:

<http://www.microsoft.com/windowsxp/expertzone/newsgroups.mspx>

Optimizing Compatibility of Applications, Drivers, and Hardware:

Need to find out which modems are compatible with Windows XP? Having trouble running your favorite game? To find compatibility issues information, on the Help and Support enter home page, click Find compatible hardware and software for Windows XP. You can also use the Program Compatibility Wizard to resolve the most common compatibility problems between your programs and Windows XP that might occur after an upgrade.

Getting Older Programs to Run on Windows XP

Most programs run properly on Windows XP. The exceptions are some older games and other programs that were written specifically for an earlier version of Windows. To run your program on Windows XP, try the following:

- Run the Program Compatibility Wizard.
- Set the compatibility properties manually.
- Update your program, drivers, or hardware

Running Program Compatibility Wizard

This wizard prompts you to test your program in different modes (environments) and with various settings. For example, if the program was originally designed to run on Windows 95, set the compatibility mode to Windows 95 and try running your program again. If successful, the program will start in that mode each time. The wizard also allows you to try different settings, such as switching the display to 256 colors and the screen resolution to 640 x 480 pixels.

If compatibility problems prevent you from installing a program on Windows XP, run the Program Compatibility Wizard on the setup file for the program. The file may be called Setup.exe or something similar, and is probably located on the Installation disc for the program.

To run the Program Compatibility Wizard:

- Click **Start**, click **Help and Support**, click **Find compatible hardware and software for Windows XP**, and then, under **See Also in the navigation** pane, click **Program Compatibility Wizard**.
- Follow the instructions in the wizard.

Setting the Compatibility Properties Manually

As an alternative to running the Program Compatibility Wizard, you can set the compatibility properties for a program manually. The settings are the same as the options in the Program Compatibility Wizard.

To set the compatibility properties for a program manually:

- Right-click the program icon on your desktop or the shortcut on the Start menu for the program you want to run, and then click **Properties**.
- Click the **Compatibility** tab, and change the compatibility settings for your program.

Updating Your Program or Drivers

If your program does not run correctly after testing it with the Program Compatibility Wizard, check the Web for updates or other fixes, as follows:

- Check the Web site of the program's manufacturer to see if an update or patch is available.
- Check Windows Update to see if a fix is available for the program. Click **Home** on the menu bar of Help and Support Center, then click **Windows Update** in the right pane.
- If the program is a game that uses DirectX, ensure that you are using the latest version of DirectX. In addition, check the Web site of the manufacturer of your video card or sound card to see if newer drivers are available for either of them.



Check your understanding

1. What do you understand by Windows Newsgroup?
2. How will you get older programs to run on Windows XP?

Using Windows Update:

You can download the latest updates for Windows XP, other programs on your computer, and your hardware. You can have Windows Update notify you automatically when critical updates become available.

To check what is available, click **open** the Help and Support Center home page and click **Keep your computer up-to-date with Windows Update**.

Keeping Windows Up-To-Date Automatically

Windows can keep your computer up-to-date automatically with the latest updates, drivers, and enhancements. Windows recognizes when you are online and uses your Internet connection to search for downloads from the Windows Update Web site. An icon appears in the notification area each time new updates are available.

You can specify how you want Windows to update your computer. If you choose not to install a specific update that has been downloaded, Windows deletes its files from your computer. If you change your mind later, you can download it again by first clicking Restore Declined Updates. If any of the updates you previously declined still apply to your computer, they will appear the next time Windows notifies you of available updates.

Getting How To Articles about Windows XP:

It's easy to see some of the latest how to articles from the Web by clicking on links directly in the Help and Support home page.

Using Tools:

Use the many tools in Help and Support Center to find information about your computer and keep it working efficiently. To display the list of tools, on the home page, click Use Tools to view your computer information and diagnose problems.



Check your understanding

1. How can you access Windows Update from Help & Support Center?
2. How can you access Windows XP How to Articles?
3. How can you access Windows XP tools?

Using Troubleshooters

Troubleshooters help you diagnose and solve technical problems that are occurring with your computer. When you start a troubleshooter, you must answer a series of questions about the problem you are having. These answers help Windows find a solution to your problem. There are numerous different troubleshooters, each one designed to solve a different type of problem.

Troubleshooter	Identifies and resolves problems related to:
System setup	Installing and setting up Windows.
Startup/Shutdown	Starting and shutting down your computer.
Display	Video cards and video adapters, including your computer screen, outdated or incompatible video drivers, and incorrect settings for your video hardware.
Home networking	Setup, Internet connections, sharing files and printers.
Hardware	Disk drives, game controllers, input devices, network adapter cards, USB devices, modems, and sound cards.
Multimedia and games	Games and other multimedia programs, DirectX drivers, USB devices, DVDs, sound, joysticks, and related issues.
Digital Video Discs (DVDs)	DVD drives and decoders.
Input Devices	Keyboards, mouse and trackball devices, cameras, scanners, and infrared devices.
Drives and Network Adapters	Hard discs, floppy discs, CD-ROM and DVD drives, network cards, tape drives, backup programs.
USB	USB connectors and peripherals.
Sound	Sound and sound cards.
Modem	Modem connections, setup, configuration, and detection.
Internet connection sharing	Connecting and logging on to your ISP.
Internet Explorer	Browsing the Web, downloading files, saving your favorites, using IE toolbars, or printing Web pages.
Outlook Express (Messaging)	Outlook Express and Windows Messenger Service.
File and Print Sharing	Sharing files and printers between computers, connecting to other computers in a network, installing network adapters, logging on.
Printing	Printer installation and connection, printer drivers, print quality, printer speed, and fonts.

Windows Update

Use Windows Update to choose updates for your computer's operating system, software, and hardware. These updates can help to:

- Get the latest updates for Windows, hardware, and software online
- Keep your computer protected and running smoothly

New content is added to the site regularly, so you can always get the most recent updates and fixes to protect your computer and keep it running smoothly.

To configure automatic updates, click Start>Control Panel>Security Center>Automatic Updates and ensure Automatic Updates is selected and then click Ok.

Reset Windows Update Components

Steps:

1. Stop the BITS service and the Windows Update service, by running the following commands from command prompt:
net stop bits
net stop wuauserv
2. Delete the qmgr*.dat files by running the following command:
Del ALLUSERSPROFILE%\ApplicationData\Microsoft\Network\Downloader\qmgr*.dat"
3. Run the following commandL
cd /d %windir%\system32
4. Reregister the following BITS files and the Windows Update files.
atl.dll
urlmon.dll
mshtml.dll
shdocvw.dll
browseui.dll
jscript.dll
vbscript.dll
sccrun.dll
msxml.dll
msxml3.dll
msxml6.dll
actxprxy.dll
softpub.dll
wintrust.dll
dssenh.dll
rsaenh.dll
gpkcsp.dll
sccbase.dll
slbcsp.dll
cryptdlg.dll
oleaut32.dll
ole32.dll
shell32.dll
initpki.dll
wuapi.dll
wuaueng.dll
wuaueng1.dll
wucltui.dll
wups.dll
wups2.dll
wuweb.dll

qmgr.dll
 qmgrprxy.dll
 wucltux.dll
 muweb.dll
 wuwebv.dll

5. Reset Winsock, using the following command
 netsh reset winsock
6. Reset the proxy settings, using the following command
 proxycfg.exe -d
7. Restart the BITS service and the Windows Update service, using the following command
 net start bits
 net start wuauserv
8. Install the latest Windows Update Agent and restart the computer.



Check your understanding

1. What do you understand by Windows troubleshooters? Name few of them.
2. How will you reset Windows update components?

Windows Update Services

Windows update depends on the following three services.

- Automatic Updates
- Background Intelligent Transfer Service (BITS)
- Event Log

When stopping and restarting the Automatic Update and BITS services, you may encounter error messages preventing the service from starting. To reinstall the Windows Update services follow the steps below.

1. To reinstall Automatic Update Service, click **Start, Run** and then type the following command and click **OK**:
 %SystemRoot%\System32\rundll32.exe setupapi,InstallHinfSectionDefaultInstall
 132 %SystemRoot%\inf\au.inf
2. To reinstall BITS Service, click **Start, Run** and then type the following command and click **OK**:
 %SystemRoot%\System32\rundll32.exe setupapi,InstallHinfSectionDefaultInstall
 132 %SystemRoot%\inf\qmgr.inf

Troubleshooting Windows Update

The error messages generated while using the Windows Update site can be used to determine where the problem is occurring. Windows Update error messages can be viewed in two locations:

- On the Windows Update site when the error occurs
- From the WindowsUpdate.log file that is located in the %SystemRoot% directory

The basic format of the log file is as below:

Date	Time	PID	TID	Component	Text
2005-06-01	18:30:03	992	810	Misc	= Logging initialized
2005-06-01	18:30:03	992	810	Misc	= Process:
2005-06-01	18:30:03	992	810	Misc	= Module:

To access the log file, click **Start /Run** and type **WINDOWSUPDATE.LOG** and click **OK**.

To determine where an error has occurred by looking up the error code in the table below. The beginning segment will identify what Windows Update process returned the error. Once you have identified the error code and determined where it is being generated you can look up the error text in the spreadsheet for a more detailed description.

Error Prefix	Process
0x8DDD????	Windows Update Web Site
0x18??????	Windows Update Web Site
0x800700??	Windows Update Web Site
0x8024????	WUS Controls (Scan for Updates)
0x8019????	Background Intelligent Transfer Service (BITS)
0x8020????	Background Intelligent Transfer Service
0x8007F???	update.exe installer
0xC???????	Corruption in C:\windows\softwaredistribution\datastore

Using the error code received from the log file, you can search for articles from Microsoft website.



Check your understanding

1. Name the dependencies of Windows Update Services?
2. How will you reinstall Windows Update Services?
3. Name the two locations from where Windows Update error messages can be viewed.
4. How will you access Windows Update log file?

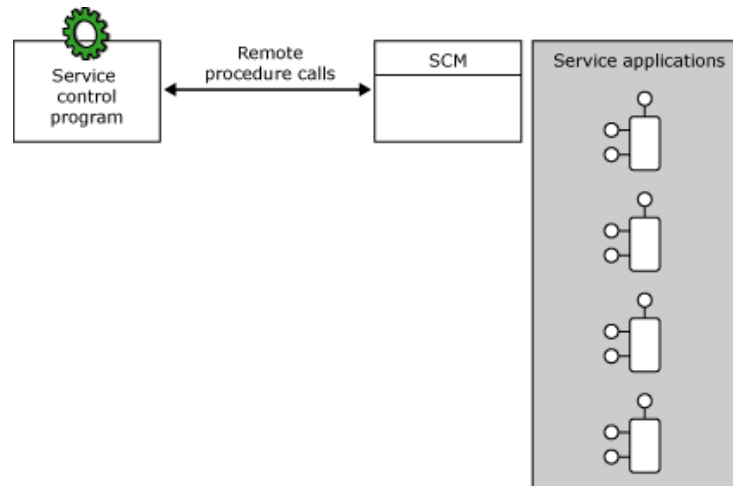
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5. Name the process that might be associated with an Windows Update error message with prefix 0x18?????.

Windows Service Architecture

A Windows service is a long-running executable that performs specific functions and which is designed not to require user intervention. Windows services can be configured to start when the operating system is booted and run in the background as long as Windows is running, or they can be started manually when required. The ingredients of Windows Service are:

- An executable file
- A directory for storing application components
- Registry settings that define the service parameters



Components

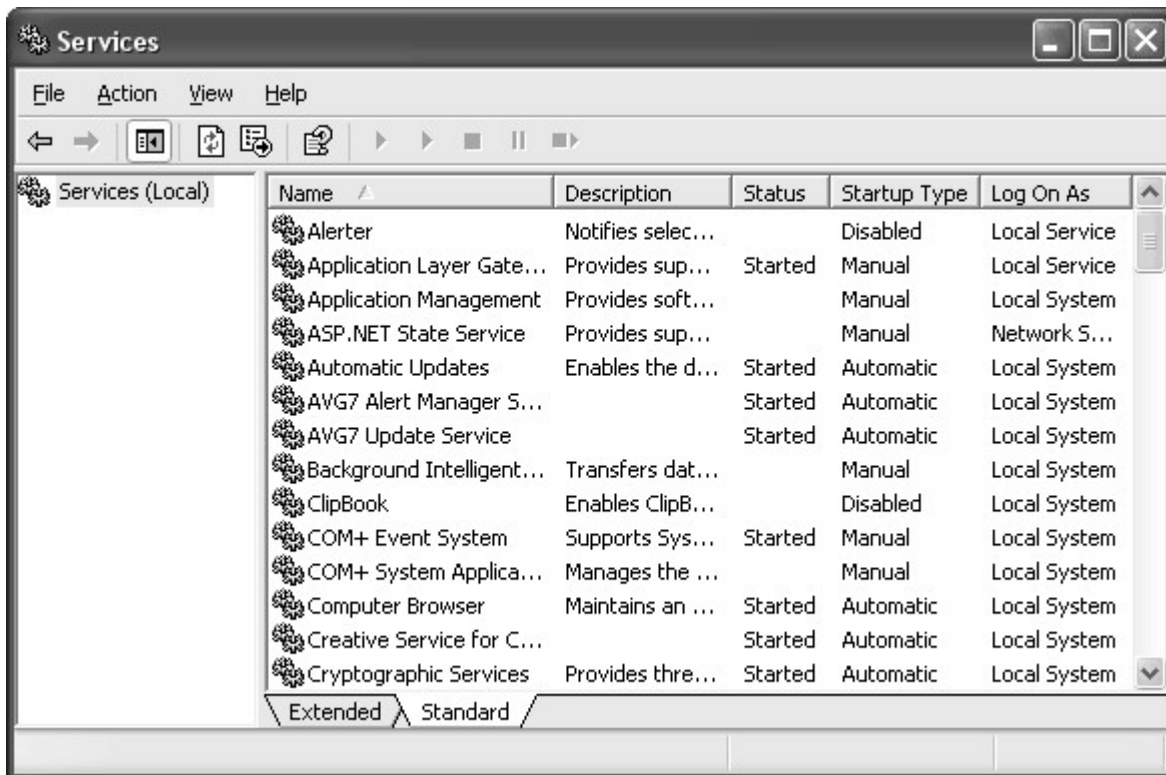
Service Application: An application that consists of one or more services that provides the desired functionality.

Service Controller Program: An application that enables you to control the behavior of a service. Examples of service control programs are the Services tool and the command-line tools net.exe and SC.exe.

Service Control Manager (SCM): A utility that enables you to control the services that are installed on a computer. It performs various service related tasks. These tasks are detailed in the following sections.

- Maintaining a database of installed services
- Locking and unlocking the services database
- Enumerating installed services
- Starting, stopping, pausing, or resuming services
- Maintaining status information for services that are running

To start Service Control Panel, open MSConfig and click Services Tab to view the list of services or run 'Services.msc' from Run dialog box.



Name: Official name for the service

Description: Brief description of what the service does, not always understandable to the average user.

Status: Shows if the service is currently running (started), paused, or stopped (blank)

Startup Type: Shows how the service is started when the computer boots up and can be set to: Automatic, Manual, or Disabled.

Log On As: Restricts the service to running as a particular user's account profile and forces the service to comply with set restrictions for that user, and can be set to: Local System, Local Service, or Network Service.



Check your understanding

1. What do you understand by a Windows Service?
2. What are the main components of Windows Service? Explain them.

Tabs

Double click the desired service and it will display its properties dialog box. You will find four tabs namely General tab, Log on tab, Recovery tab and Dependencies tab.

General tab:

- Provides the information related to services like- name, description, path to execution, startup type and service status
- Allows starting, stopping, and selecting the startup type of the service while booting, which can be: can be set to Automatic, Manual, or Disabled.
- **Automatic:** The service will start automatically as soon as you boot up your computer and require no intervention from you.
- **Manual:** The service will not start automatically when you boot up your computer, but it is always available, and will turn on once it is needed by another program or service. The manual setting allows your system to run a little faster while keeping the service available for use.
- **Disabled:** The service will not start automatically when you boot up your computer, and will not be available to run if another program or service needs it to function.

Log on tab:

- Allows for a general way to associate user permissions to the permissions of the specified service
- Allows specifying to log on as a specific account that has access to some specific resources
- Allows enabling or disabling the specified service for each hardware profile listed

Types of service startup accounts:

- **Local Service Account:** The built-in account that has the same level of access to resources and objects as members of the Users group. This limited access helps safeguard the system if individual services or processes are compromised. Services that run as the Local Service account access network resources as a null session without credentials.
- **Network Service Account:** It is a built-in account that has more access to resources and objects than members of the Users group. Services that run as the Network Service account access network resources by using the credentials of the computer account. The actual name of the account is "NT AUTHORITY\NETWORK SERVICE".
- **Local System Account:** It is a very high-privileged built-in account that has extensive privileges on the local system and acts as the computer on the network. The actual name of the account is **NT AUTHORITY\SYSTEM**.

A service that runs in the context of the LocalSystem account inherits the security context of the SCM. The user SID is created from the

SECURITY_LOCAL_SYSTEM_RID value. The account is not associated with any logged-on user account. This has several implications:

- The registry key HKEY_CURRENT_USER is associated with the default user, not the current user. To access another user's profile, impersonate the user, and then access HKEY_CURRENT_USER.
- The service can open the registry key HKEY_LOCAL_MACHINE\SECURITY.
- The service presents the computer's credentials to remote servers.
- If the service opens a command window and runs a batch file, the user could hit CTRL+C to terminate the batch file and gain access to a command window with LocalSystem permissions.

Recovery tab:

- Gives you the limited ability to restart services if they should fail
- Allows sending various notifications to alert you that your service has gone down

Dependencies tab:

- Shows the service components on which a service depends



Check your understanding

1. Explain the functions of following tabs of a service properties dialog box:
 - General
 - Log on
 - Recovery
 - Dependencies
2. What can be the startup types of a service?
3. Explain different types of service startup accounts?

Troubleshooting Windows Services

Perform these steps if you cannot start the services tool:

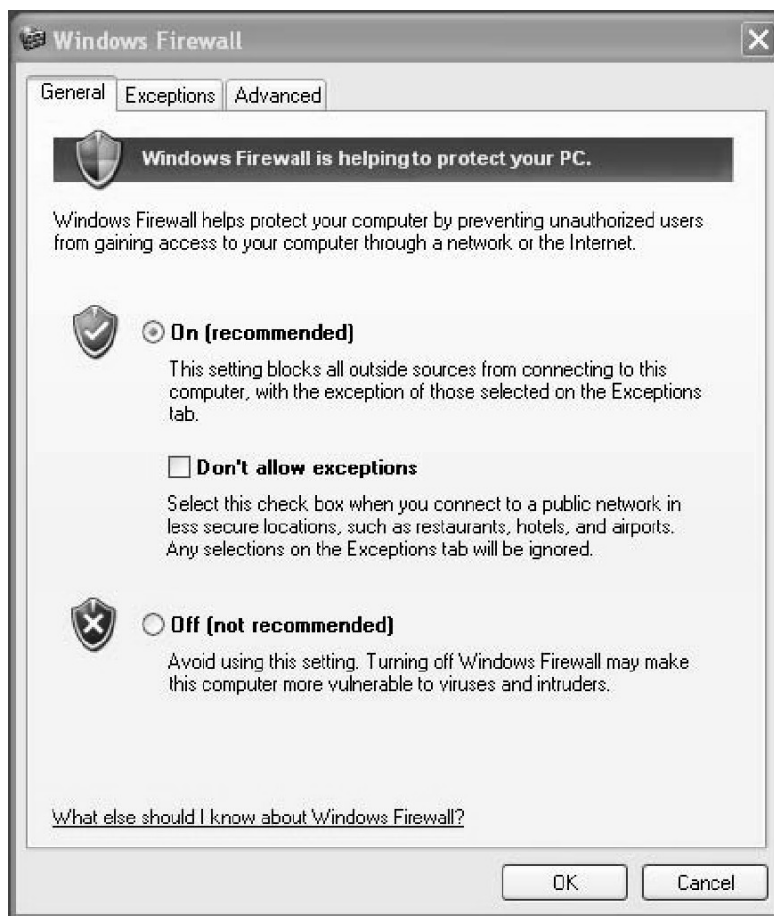
1. Start Registry Editor (Regedit.exe)
2. Locate the ObjectName value in the following registry key:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\ServiceName
3. On the Edit menu, click **Modify**.
4. In the Value Data box, type localsystem, and then click OK.
5. Quit Registry Editor.

6. Attempt to restart the service. You may need to restart the computer for some services to restart properly

Windows Firewall

Windows Firewall is a software component of Microsoft Windows that provides firewalling and packet filtering functions. Prior to the release of Windows XP Service Pack 2 in 2004, it was known as Internet Connection Firewall.

To open it, click **Start>Control Panel>Windows Security Center>Windows Firewall**



When someone tries to connect to the computer, it is known as **unsolicited request**. At this point, Windows Firewall blocks the connection. If you run a program such as an instant messaging program or a multiplayer network game that needs to receive information from the Internet or a network, the firewall asks if you want to block or unblock (allow) the connection.



- **Keep Blocking.** Use this option so the program won't connect without your permission.
- **Unblock.** Use this option to place the program in the Windows Firewall exceptions list.
- **Ask me later.** Use this option if you do not know whether to block or to unblock the program. This option keeps the program blocked for greater security. This message appears again the next time that this program is blocked.



Check your understanding

1. Describe the troubleshooting steps if you cannot start Windows Services tool.
2. What is Windows Firewall?

Configuring Windows Firewall

General tab: It has three main configuration options:

1. On (recommended):
2. Don't allow exception
3. Off (not recommended)

Don't Allow Exceptions: When you select Don't allow exceptions, Windows Firewall blocks all requests to connect to your computer, including those from programs or services on the Exceptions tab.

Exceptions tab: It provides the ability to add Program and Port exceptions to permit certain types of inbound traffic. For each exception, you can set a scope for the exception. For home and small office networks, it is recommended that you set the scope to the local network only where possible. This will enable computers on the same subnet to connect to the program on the machine, but drops traffic originating from a remote network.

To help decrease your security risk:

- Only allow an exception when you really need it.
- Never allow an exception for a program that you don't recognize
- Remove an exception when you no longer need it.

To add a program to the exceptions list on the Exceptions tab, under Programs and Services, select the check box for the program or service that you want to allow, and then click OK.

If the program (or service) that you want to allow is not listed

1. Click **Add Program**.
2. In the Add a Program dialog box, click the program that you want to add, and then click **OK**. The program will appear, selected, on the Exceptions tab, under Programs and Services.
3. Click **OK**.

Advanced tab: The default configuration for Windows Firewall is enabled for all connections. You can change this for individual connections, and you can set a different configuration for each connection.

To use Network Connection settings:

1. In Windows Firewall, on the **Advanced** tab, under **Network Connection Settings**, clear all connections that you do not require Windows Firewall to protect.
2. Click to select the particular connection that you wish to change from the default firewall settings, and then click **Settings**.
3. Select or deselect the particular service that you wish to enable or disable for this connection.
4. If the service you wish to enable for this connection is not displayed, click **Add**
5. Type the specific connection details into each of the fields for the service that you wish to enable, and then click **OK**.

Configure Security Logging Settings

Windows Firewall can keep a log of successful connections that go through the firewall and any connections that are blocked. When you choose to log dropped packets, information is collected about each attempt to cross the firewall that is detected and blocked. When you choose to log successful connections, information is collected about each successful connection that travels across the firewall. For example, when your computer successfully connects to a Web site using a Web browser, that connection is recorded in the log.

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The security log has two sections:

1. **Header.** This displays information about the version of the security log and the fields that are available to enter information into.
2. **Body.** This is the complete report of all of the information gathered and recorded about the traffic across, or attempts to cross the firewall. The body of the security log is a dynamic list, which displays new data entries at the bottom of the log.

To configure Security Logging settings

1. In Windows Firewall, on the **Advanced** tab, under **Security Logging**, click **Settings**
2. In the Log Settings dialog box, click **Log dropped packets**, to record all the connection attempts rejected by your firewall, and Log successful connections, to record all the connection attempts allowed by your firewall.
3. Type a path and name for your log, (pfirewall.log is the default).
4. Configure a size limit, such as 4096KB, to ensure that your log does not grow to an unmanageable size, and then click **OK**.

Configure ICMP Settings

The ICMP (Internet Control Message Protocol) is used in networks to diagnose many network problems. For example, the ping utility uses ICMP echo request and response messages to test connectivity between computers. Windows XP SP2 is not capable of discovering whether the ICMP packets are being used for a genuine test or are being used for malicious purposes. With the ICMP settings in Windows Firewall, you can choose which control messages your computer responds to.

To configure ICMP options

1. In Windows Firewall on the **Advanced** tab, under **ICMP**, click **Settings**
2. Select the appropriate requests that you want your computer to respond to and then click **OK**.



Check your understanding

1. How will you configure Windows Firewall using following tabs:
 - General
 - Exceptions
 - Advanced
2. How will you add a program that is not listed in exception list?
3. Describe the process of configuring security logging settings in Advanced tab of Windows Firewall?
4. Describe the process of configuring ICMP settings in Advanced tab of Windows Firewall?

Troubleshooting Windows Firewall

While troubleshooting Windows Firewall, follow the basic rules mentioned below:

1. Windows Firewall can be enabled or disabled only by administrators by a Local Security Policy or Group Policy.
2. To share printers and files on a local computer that is running Windows Firewall, you must enable the File And Printer Sharing exception.
3. If the local computer is running a service, network users cannot connect to these services unless you create the proper exceptions in Windows Firewall.
4. Windows Firewall blocks Remote Assistance and Remote Desktop traffic by default. You must enable the Remote Desktop and/or Remote Assistance exceptions for remote users to be able to connect to a local computer with Remote Desktop or Remote Assistance.

Follow these steps to diagnose problems:

- Use the **ping** command to test the loopback address (127.0.0.1) and the assigned IP address.
- Verify the configuration in the user interface to determine whether the firewall has been unintentionally set to **Off** or **On with No Exceptions**.
- Use the **netsh** commands for Status and Configuration information to look for unintended settings that could be interfering with expected behavior.
- Determine the status of the Windows Firewall/Internet Connection Sharing service by typing the following at a command prompt:

```
sc query sharedaccess
```

- Determine the status of the Ipnat.sys firewall driver by typing the following at a command prompt:

```
sc query ipnat
```

This command also returns the Win32 exit code from the last start try.

- If the driver and service are both running, and no related errors exist in the event logs, use the **Restore Defaults** option on the **Advanced** tab of Windows Firewall properties to eliminate any potential problem configuration.
- If the issue is still not resolved, look for policy settings that might produce the unexpected behavior. To do this, type **GPResult /v > gpresult.txt** at the command prompt, and then examine the resulting text file for configured policies that are related to the firewall.



Check your understanding

1. What are the basic rules that should be considered while troubleshooting a firewall issue?
2. How will troubleshoot a Firewall issue?

Windows Firewall Troubleshooting Tools

Following Firewall troubleshooting tools are available:

Netsh Firewall Show Commands:

- **netsh firewall show state verbose=enable:** Displays the actual state of Windows Firewall for the current set of settings, as configured by the combination of local Windows Firewall settings and Group Policy-based Windows Firewall settings, and the current set of open ports.
- **netsh firewall show config verbose=enable:** Displays only the local Windows Firewall settings as configured by local settings. You can use this command when you want to compare what is configured locally to the actual state of Windows Firewall, to determine the changes in Windows Firewall settings due to Group Policy.

Audit Logging: To track changes that are made to Windows Firewall settings and to see which applications and services asked Windows XP to listen on a port, you can enable audit logging and then look for audit events in the security event log:

1. Log on using an account that is a local administrator.
2. From the Windows XP desktop, click **Start**, click **Control Panel**, click **Performance and Maintenance**, and then click **Administrative Tools**.
3. In Administrative Tools window, double-click **Local Security Policy** Shortcut.
4. In the console tree of the **Local Security** Settings snap-in, click **Local Policies**, and then click **Audit Policy**.
5. In the details pane of the **Local Security** Settings snap-in, double-click **Audit policy change**. Select **Success and Failure**, and then click **OK**.
6. In the details pane of the **Local Security Settings** snap-in, double-click **Audit process tracking**. Select **Success and Failure**, and then click **OK**.
7. Close the **Local Security** Settings snap-in.

You can also enable audit logging for multiple computers in an Active Directory service domain using Group Policy by modifying the Audit policy change and Audit process tracking

settings at Computer Configuration\Windows Settings\Security Settings\Local Policies\Audit Policy for the Group Policy objects in the appropriate domain system containers.

Once audit logging is enabled, use the Event Viewer snap-in to view audit events in the security event log.

Windows Firewall uses the following event IDs:

- 848 - Displays the startup configuration of Windows Firewall.
- 849 - Displays an application exception configuration.
- 850 - Displays a port exception configuration.
- 851 - Displays a change made to the application exceptions list.
- 852 - Displays a change made to the port exceptions list.
- 853 - Displays a change made to the Windows Firewall operation mode.
- 854 - Displays a change made to Windows Firewall logging settings.
- 855 - Displays a change made to ICMP settings.
- 856 - Displays a change made to the Prohibit unicast response to multicast or broadcast requests setting.
- 857 - Displays a change made to the Remote Administration setting.
- 860 - Displays a change made to a different profile.
- 861 - Displays an application attempting to listen for incoming traffic.



Check your understanding

1. What are the functions of following network commands?
 - netsh firewall show state verbose=enable
 - netsh firewall show config verbose=enable
2. What is audit logging tool used?
3. How will you enable audit logging?
4. What does a firewall event ID 855 indicate?

Windows Firewall Logging file: To determine whether a specific computer is dropping packets, enable Windows Firewall logging, either on an individual computer or through Group Policy settings. Then, check the Windows Firewall log file for entries that correspond to the suspected traffic.

The Pfirewall.log file, stored by default in your main Windows folder, records either discarded incoming requests or successful connections based on the Security Logging settings on the Advanced tab in the Windows Firewall component of Control Panel or through the Windows Firewall: Allow logging Group Policy setting. You can use the contents of the Pfirewall.log file to determine whether traffic is reaching the computer on which Windows Firewall is enabled without having to create an exception or enable ICMP traffic.

For example, when you select the Log dropped packets check box, all incoming traffic that is discarded by the firewall is logged in the Pfirewall.log file. You can view this file by double-clicking it in your main Windows folder with Windows Explorer. Use the contents of the log file to determine whether traffic reached your computer and was discarded by Windows Firewall.

The Services Snap-in: You use the Services snap-in to check the status of services (programs running on your computer that provide capabilities to other application programs you might run). For Windows Firewall troubleshooting, use the Services snap-in to check the status and properties of the Windows Firewall (WF)/Internet Connection Sharing (ICS) service. Once Windows Firewall has been enabled, the Windows Firewall (WF)/Internet Connection Sharing (ICS) service in the Services snap-in should be started and configured to automatically start.

To use the Services snap-in, do the following:

1. Click **Start**, click **Control Panel**, click **Performance and Maintenance**, click **Administrative Tools**, and then double-click **Services**.
2. In the details pane of the Services snap-in, double-click the **Windows Firewall (WF)/Internet Connection Sharing (ICS) service**.

Startup type should be set to Automatic and the Service status should be Started.

The Event Viewer Snap-in: If the Windows Firewall (WF)/Internet Connection Sharing (ICS) service is unable to start, then it adds entries to the system event log with information about why it could not start. Additionally, audit log events corresponding to changes in Windows Firewall configuration and program requests to open ports are stored in the security event log. To view the system or security event logs, use the Event Viewer snap-in.

To view the entries in the system or security event logs with the Event Viewer snap-in, do the following:

1. Click **Start**, click **Control Panel**, click **Performance and Maintenance**, click **Administrative Tools**, and then double-click **Event Viewer**.
2. To look for error events for the Windows Firewall (WF)/Internet Connection Sharing (ICS) service, click **System** in the console tree of the Event Viewer snap-in.
3. In the details pane of the Event Viewer, look for Error events.
4. To look for audit events corresponding to applications or service attempting to open ports, click **Security** in the console tree of the Event Viewer snap-in.

In the details pane of the Event Viewer, look for events with the event IDs 849, 850, and 861.

The Netstat Tool: The Netstat tool displays a variety of information about active TCP connections, ports on which the computer is listening, Ethernet statistics, the IP routing table, and IPv4 and IPv6 statistics. In Windows XP with SP2, the Netstat tool supports a

new `-b` option that displays the set of components by file name that are listening on each open TCP and UDP port.

In Windows XP with SP1 and Windows XP with SP2, you can use the `netstat -ano` command to display the complete set of ports being listened to in numerical form and their corresponding process IDs (PIDs). You can then look up the PID in the display of the `tasklist /svc` command to discover the name of the process that owns the port. However, in some cases, there are multiple services within a single process and it is not possible with the `netstat -ano` command to determine which service within the process owns the port.

With the `netstat -anb` command, Netstat displays the complete set of TCP or UDP ports in numerical form, the file names corresponding to the components of the service that owns the port, and the corresponding PIDs. From the file names and the PID, you can determine which of the services in the display of the `tasklist /svc` command opened the port.



Check your understanding

1. Why is Windows Firewall logging file used for?
2. What is the Services snap-in and how will you use it for Firewall troubleshooting?
3. What is the Event Viewer snap-in and how will you use it for Firewall troubleshooting?
4. Describe Netstat tool.

Windows Registry

The Windows Registry is a hierarchical database that stores configuration settings and options on Microsoft Windows operating systems. It contains settings for low-level operating system components as well as the applications running on the platform: the kernel, device drivers, services, SAM, user interface and third party applications all make use of the Registry. The registry also provides a means to access counters for profiling system performance.

The machine-based files—the files that store the pieces of the Registry—and the operating system are located in the system root directory, `%SystemRoot%\System32\Config`. User-based Registry files are stored in each user profile as an `NTUser.dat` file.

Registry Structure

The registry consists of top level hives, containing keys, which contain sub-keys and values.

Hives: The Registry is based on several top level structures known as hives:

- **HKEY_CLASSES_ROOT**- which stores information about file types on the computer commonly known as file associations.

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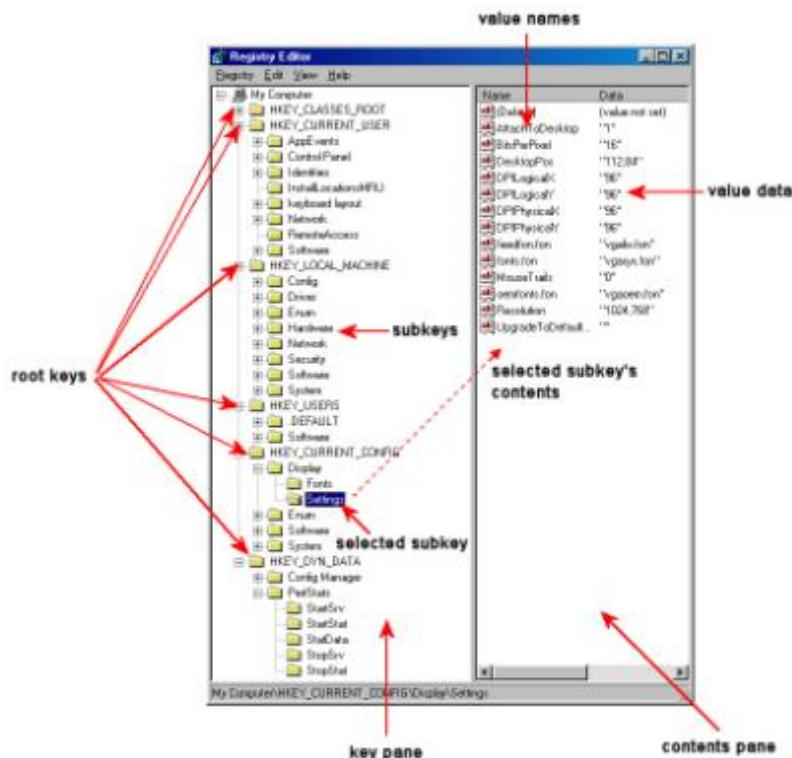
- **HKEY_CURRENT_USER**- which stores settings for the currently logged-on user;
- **HKEY_LOCAL_MACHINE**- which stores machine-based settings;
- **HKEY_USERS**- which stores information about the currently logged-on user and also the default user profile
- **HKEY_CURRENT_CONFIG**- which is information about the hardware profile that's currently in use on the computer

Keys: Registry keys are containers for values and other keys. They have a nested structure just like a folder structure on a drive. They also have permissions just like file system objects on an NTFS drive. They are displayed in Registry Editor as folders.

Subkey: A child that appears under another key (the parent). This concept is similar to folders and subfolders in Windows Explorer. Subkeys are similar to subsections in an outline Values.

Values: Registry values are the terminal elements in the Registry. They are represented as files in the Registry Editor and they actually contain value data, which is the element of the Registry that stores the actual setting. Value types are as follows:

- **REG_SZ** is a text string. This is commonly used for things like a path to a file or text that would be represented as a message on screen and other descriptions.
- **REG_BINARY** stores raw binary data.
- **REG_DWORD** is a four-byte number. These are represented typically as a hex number.
- **REG_MULTI_SZ** is a multiple string value. This contains multiple strings.
- **REG_EXPAND_SZ** is a variable length string. So they may contain variables.





Check your understanding

1. What do you understand by Windows Registry?
2. What are the major components of Windows Registry? Explain them.

Registry Editor

The Registry Editor or RegEdit.exe is the tool in Windows XP that is used for editing the Registry. In Windows XP, RegEdt32 is called as RegEdit.exe, so you can use Regedit for your entire Registry editing needs. You can use Registry Editor to do the following:

- Locate a subtree, key, subkey, or value
- Add a subkey or a value
- Change a value
- Delete a subkey or a value
- Rename a subkey or a value

Features of Registry Editor

Import and Export: This is on the File menu. It enables you to save or Export .REG files, which are portable Registry files that can be imported into either another computer or into the same computer after making changes. You can also export files as hive files. These are files with no extension that maintain the native format of the Registry rather than being converted to a text file, as in the case of a .REG file.

Search: You can also Search for text within the Registry. Use the Search feature on the File menu to search for the key you need.

Favorite Keys: You can save Favorite Keys, which are similar to Internet Explorer favorites—they store a path to a favorite location. If you commonly find yourself examining a certain key, you can save it in your favorites and then navigate back to it easily.

Load Hive

You can also load hive. Once you have exported a hive files or if you simply want to open one of the top level Registry files, you can choose the Load hive option on the File menu. This is only available when "HKEY_LOCAL_MACHINE" or "HKEY_CURRENT_USER" are selected.

Connect: You can also connect to a remote Registry. When you connect to a remote machine in Registry Editor, you only have access to "HKEY_LOCAL_MACHINE" and "HKEY_USERS" keys.



Check your understanding

1. What do you understand by Windows Registry Editor?
2. What are the functions of Registry Editor?

Troubleshooting Registry Corruption

When registry is corrupt, you may encounter different error messages such as

*Windows XP could not start because the following file is missing or corrupt:
 \WINDOWS\SYSTEM32\CONFIG\SYSTEM*

Or

*Windows XP could not start because the following file is missing or corrupt:
 \WINDOWS\SYSTEM32\CONFIG\SOFTWARE*

To restore the computer to a stable condition, perform the following actions:

Use Repair Hives

1. At the Recovery Console command prompt, type the following lines, pressing ENTER after you type each line:

```
cd \windows\system32\config
ren system system.old
ren software software.old
ren SAM SAM.old
ren security security.old
ren default default.old
cd \
cd windows\repair
```

2. This next step checks the date and time on the files in the Repair folder. It is important to determine how recently these files were updated. They could be unchanged since Windows XP was originally installed. In order to check the date and time of the files, type DIR.
3. Note the date the files were modified for use later.
4. Continue with the copy of files from the Repair folder to the Config folder using the following commands:

```
copy system C:\windows\system32\config\system
copy software C:\windows\system32\config\software
copy sam C:\windows\system32\config\sam
```

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copy security C:\windows\system32\config\security
copy default C:\windows\system32\config\default

5. Type exit and restart the computer

Boot the Computer to Safe Mode: You may be unable to log on to the computer in Normal Mode at this point. This can occur because the local user account passwords have been reset to the point at which the Repair registry hives were last saved.

In the event that you cannot log on, use the Administrator account, which does not have a password set by default.

Obtain Restore Point Hives: After gaining access to Windows, you can now make copies of the more recent registries from the Restore Point folders created by System Restore. To do this, use the following steps:

1. Start Windows Explorer.
2. On the Tools menu, click **Folder options**.
3. Click the **View** tab.
4. Under **Hidden files and folders**, click to select **Show hidden files and folders**, and then click to clear the **Hide protected operating system files (Recommended)** check box.
5. Click **Yes** when the dialog box that confirms that you want to display these files appears.
6. Double-click the drive where you installed Windows XP to display a list of the folders. If is important to click the correct drive.
7. Open the System Volume Information folder. This folder is unavailable and appears dimmed because it is set as a super-hidden folder.

Note: *This folder contains one or more _restore {GUID} folders such as "_restore{87BD3667-3246-476B-923F-F86E30B3E7F8}". If you receive the following error message, use the steps below to add the current user to the permissions for the folder. Otherwise proceed to step 8 below.*

C:\System Volume Information is not accessible. Access is denied.

- a) Open My Computer, right-click the System Volume Information folder, and then click Properties.
 - b) Click the Security tab
 - c) Click Add, and then type the name of the current user. This is the account with which you are logged on.
 - d) Click OK, and then click OK.
 - e) Double-click the System Volume Information folder to open it.
8. In the GUID folder, open a folder that was created recently. You may need to click **Details** on the **View** menu to see when these folders were created. There

may be one or more folders starting with "RP x" under this folder. These are restore points.

9. Open one of these folders to locate a Snapshot subfolder. The following path is an example of a folder path to the Snapshot folder. Also see for an image of a Snapshot folder:

```
C:\System Volume Information\_restore{D86480E3-73EF-47BCA0EB-  
A81BE6EE3ED8}\RP1\Snapshot
```

10. From the Snapshot folder, copy the following files to the C:\Windows\Tmp folder:

```
_REGISTRY_USER_.DEFAULT  
_REGISTRY_MACHINE_SECURITY  
_REGISTRY_MACHINE_SOFTWARE  
_REGISTRY_MACHINE_SYSTEM  
_REGISTRY_MACHINE_SAM
```

11. Rename the files in the C:\Windows\Tmp folder as follows:

```
Rename _REGISTRY_USER_.DEFAULT to DEFAULT  
Rename _REGISTRY_MACHINE_SECURITY to SECURITY  
Rename _REGISTRY_MACHINE_SOFTWARE to SOFTWARE  
Rename _REGISTRY_MACHINE_SYSTEM to SYSTEM  
Rename _REGISTRY_MACHINE_SAM to SAM
```

Use Restore Point Hives: Now these registry hive files can be copied to the proper location for use by the system. To do this, return to Recovery Console.

1. At the command prompt, type the following lines, pressing **ENTER** after you type each line:

```
cd system32\config  
ren sam sam.rep  
ren security security.rep  
ren software software.rep  
ren default default.rep  
ren system system.rep  
copy c:\windows\tmp\software  
copy c:\windows\tmp\system  
copy c:\windows\tmp\sam  
copy c:\windows\tmp\security  
copy c:\windows\tmp\default
```
2. Type **exit** to quit Recovery Console. Your computer restarts

The computer should start in Normal Mode, and the most recent passwords should be functional again and the final state of the computer has matching files and registry configuration.



Check your understanding

1. Describe the process of using repair hives.
2. How can booting into safe mode help to troubleshoot Windows registry problem?
3. How can you obtain and use Restore Point Hives?

Day 4: Internet Explorer & Internet Troubleshooting

Module Objectives:

By the end of this day, you will understand:

- System Requirements for IE 6.0
- Features of IE 6.0
- IE 6.0 Architecture & Components
- Installation & Un-installation
- Use & Optimization
- Cookie Management
- Setting up IE 6.0
- Privacy & Security Settings
- Resolving Typical Issues

Internet Explorer System Requirements

Internet Explorer (IE) is a series of graphical web browsers developed by Microsoft and included as part of the Microsoft Windows line of operating systems. The default IE for Windows XP is IE 6.0, while the later section discusses the system requirements of IE 6.0, IE 7.0, and IE 8.0.

Requirements		Internet Explorer 6.0		Internet Explorer 7.0		Internet Explorer 8.0	
Computer/Processor		486/66-megahertz (MHz) processor or higher		Computer with a 233MHz processor or higher		Computer with a 233MHz processor or higher	
Operating System		Windows 98, Windows 98 Second Edition Windows Me, Windows NT 4.0 with Service Pack 6a (SP6a) and higher, Windows 2000		Windows XP Service Pack 2 (SP2) Windows XP Professional x64 Edition Windows Server 2003 (SP1)		Windows Vista 32-bit Windows Vista 64-bit Win Vista SP1 or higher Win XP 32-bit SP 2 & SP3 Win XP 32-bit SP 2 & SP3 Win XP Pro x64 Ed. Win Server 2003 32-bit SP 2 or higher Win Server 2003 64-bit SP 2 or higher Win Server 2008 32-bit Win Server 2008 64-bit	
Drive		CD-ROM / DVD-ROM drive (if installation is done from a CD-ROM)					
Display		Super VGA (800 x 600) or higher-resolution monitor with 256 colors					
Peripherals		Modem or Internet connection; Microsoft Mouse, Microsoft IntelliMouse, or compatible pointing device					
Memory		RAM (minimum)	Full Install Size	RAM (minimum)	Full Install Size	RAM (minimum)	Full Install Size
	Windows 98	16 MB	11.5 MB	-	-	-	-
	Windows 98 SE	16 MB	12.4 MB	-	-	-	-
	Win NT 4.0 with SP6a and higher	32 MB	12.7 MB	-	-	-	-
	Win Me Edition	32 MB	8.7 MB	-	-	-	-
	Windows	32 MB	12 MB	-	-	-	-

s 2000							
Win XP 32 bit (SP2) or higher	-	-	64 MB	87 MB	64 MB	150 MB	
Win XP Pro x64 Edition	-	-	128 MB	168 MB	128 MB	200 MB	
Win Vista 32-bit	-	-	Available with the OS		512 MB	70 MB	
Win Vista 64-bit	-	-	Available with the OS		512 MB	120 MB	
Win 7 32-bit	-	-	-	-	Available with the OS		
Win 7 64-bit	-	-	-	-	Available with the OS		
Win Server 2003 32 bit (SP1)	-	-	64 MB	87 MB	-	-	
Win Server 2003 32 bit (SP2) or higher	-	-	64 MB	87 MB	64 MB	150 MB	
Win Server 2003 (SP1) ia64	-	-	128 MB	218 MB	-	-	
Win Server 2003 (SP2) ia64	-	-	128 MB	218 MB	128 MB	200 MB	



Check your understanding

1. What is the operating system requirement for IE 6.0?

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2. How much RAM will you require to install IE 8.0 on a Windows XP (64-bit)?

Internet Explorer Feature Comparison

Features	Description	IE6	IE7	IE8
Manage Cookies	Help to protect your privacy online by managing cookies. Internet Explorer provides a range of options for accepting and restricting cookies.	✓	✓	✓
Security Zones	Provide different levels of security for different areas of the Web to help protect your computer. IE divides your Internet world into four zones with varying security levels: Internet, Local Intranet, Trusted Sites, and Restricted Sites. You can assign Web sites to any of these zones and tailor the security levels to your own preferences.	✓	✓	✓
Content Advisor	Helps screen out objectionable content by using industry-standard ratings that have been defined independently by the Platform for Internet Content Selection (PICS) committee.	✓	✓	✓
Fault Collection	Offers users the option to extract information about an IE fault and upload the data to Microsoft for analysis. This information can help identify potential issues Microsoft needs to address in future IE Service Packs.	✓	✓	✓
Image Toolbar	Allows you to quickly and easily save, e-mail, and print your pictures from your Web page, as well as view all your saved pictures in the My Pictures folder. When you point to pictures on Web pages, the Image toolbar appears giving instant access to My Pictures functions.	✓	✓	✓
Media Bar	Provides a user interface for locating and playing media within the browser window. You can play music, video, or mixed-media files without opening a separate window. Control the audio volume; choose which media files or tracks to play, and access different media on your computer or on the Microsoft WindowsMedia.com Web site.	✓	✓	✓
Auto Image Resize	Resizes pictures that are too large to display in the browser window so they fit within the dimensions of the window.	✓	✓	✓
Print Preview	Lets you see the page you're about to print at a glance or zoom in for a closer look so you'll know exactly what to expect when you print Web pages.	✓	✓	✓
Favorites	Put Web sites you visit often within easy reach. That way, you don't have to remember or type anything. Just click your mouse twice—and there you are. As your list of favorite pages grows, you can organize them by moving them into subfolders.	✓	✓	✓
History List	Makes it easy to find and return to Web sites and pages you've visited in the past. Whether it's today or a few weeks ago, the History list can record pages you've visited, so it's easy to go back later on.	✓	✓	✓
Auto Complete	Saves you time by automatically remembering information that you've recently typed, such as Web addresses, information in forms, and search queries.	✓	✓	✓
Search Companion	Helps you tracking down information on the Web. Internet Explorer's built-in search feature, Search Companion, makes searching the Internet faster and simpler than ever.	✓	✓	✓
Customizable Browsing Layout	Provides options so you can change your Web browsing layout to suit the way you work. Add and remove buttons on the toolbar, increase Web page viewing space, and create a	✓	✓	✓

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	custom toolbar layout.			
Tabbed browsing	View multiple sites in a single browser window. Easily switch from one site to another through tabs at the top of the browser frame.		✓	✓
Quick Tabs	Easily select and navigate through open tabs by displaying thumbnails of them all in a single window.		✓	✓
Tab Groups	Tabs can be grouped and saved into logical categories, so you can open multiple tabs with a single click. A Tab Group can easily be set as the Home Page Group so the entire Tab Group opens every time Internet Explorer is launched.		✓	✓
Streamlined interface	A redesigned, streamlined interface maximizes the area of the screen that displays a webpage, so you see more of what you need, and less of what you don't.		✓	✓
Page zoom	Enlarge individual webpages, including both text and graphics, to either focus on specific content or to make content more accessible to those with vision limitations.		✓	✓
Advanced printing	Internet Explorer 7 automatically scales a webpage for printing, so the entire webpage fits on your printed page. Print options also include adjustable margins, customizable page layouts, removable headers and footers, and an option to print only selected text.		✓	✓
Instant Search box	Web searches using your favorite search provider can now be entered into a search box within the toolbar, eliminating the clutter of separate toolbars. You can easily choose a provider from the dropdown list or add more providers.		✓	✓
Favorites Center	Get quick and easy access to your Favorites, Tab Groups, Browsing History, and RSS Feed subscriptions. Your Favorites Center expands when needed, and can be anchored in place for even easier access.		✓	✓
RSS feeds	Internet Explorer 7 automatically detects RSS feeds on sites and illuminates an icon on the toolbar. A single click on the icon allows you to preview and subscribe to the RSS feed if you want—so you're automatically notified as content is updated. Read RSS feeds directly in the browser, scan for important stories, and filter your view with search terms or site-specific categories.		✓	✓
ActiveX opt-in	Disable nearly all pre-installed ActiveX controls to prevent potentially vulnerable controls from being exposed to attack. You can easily enable or disable ActiveX controls as needed through the Information Bar and the Add-on Manager.		✓	✓
Delete browsing history	Clean up cached pages, passwords, form data, cookies, and history, all from a single window.		✓	✓
Address bar protection	Every window, whether it's a pop-up or standard window, will show you an address bar, helping to block malicious sites from emulating trusted sites.		✓	✓
Security Status bar	Color-coded notifications appear next to the address bar to make you aware of website security and privacy settings. The Address Bar changes to green for websites bearing new High Assurance certificates, indicating the site owner has completed extensive identity verification checks. Phishing Filter notifications, certificate names, and the gold padlock icon also appear next to the address bar for better visibility. You can easily display certificate and privacy detail information with a single click on the Security Status bar.		✓	✓
Phishing Filter	This filter warns you about and helps to protect you against potential or known fraudulent websites, and blocks the sites if appropriate. This opt-in filter is updated several times per hour		✓	✓

	using the latest security information from Microsoft and several industry partners.			
Cross-domain barriers	Internet Explorer 7 helps to prevent the script on webpages from interacting with content from other domains or windows. This enhanced safeguard gives you additional protection against malware by helping to prevent malicious websites from manipulating flaws in other websites or causing you to download undesired content or software.		✓	✓
International domain name anti-spoofing	In addition to adding support for International Domain Names in URLs, Internet Explorer also notifies you when visually similar characters in the URL are not expressed in the same language—protecting you against sites that could otherwise appear as known, trustworthy sites.		✓	✓
URL handling security	Redesigned URL parsing ensures consistent processing and minimizes possible exploits. The new URL handler helps centralize critical data parsing and increases data consistency throughout the application.		✓	✓
Fix My Settings	To help protect you from browsing with unsafe settings, Internet Explorer 7 warns you with an Information Bar when current security settings may put you at risk. Within the Internet Control Panel, you will see certain critical items highlighted in red when they are unsafely configured. The Information Bar will continue to remind you as long as the settings remain unsafe. You can instantly reset Internet security settings to the "Medium-High" default level by clicking the "Fix My Settings" option in the Information Bar.		✓	✓
Add-ons disabled mode	If you have difficulties launching Internet Explorer or reaching specific websites, you can start Internet Explorer in "No Add-ons" mode, where only critical system add-ons are enabled.		✓	✓
CSS improvements	These improvements address many of the inconsistencies that can cause web developers problems when producing visually rich, interactive webpages. The improved support for CSS 2.1, including selectors and fixed positioning, allow web developers to create more powerful effects without the use of script.		✓	✓
Application compatibility toolkit	This toolkit helps IT pros and developers understand any incompatibilities their websites, applications, and deployments may have with Internet Explorer 7.		✓	✓
Alpha channel in PNG	This channel supports transparency within the PNG image format, resulting in better-looking websites that are simpler to build.		✓	✓
Group Policy improvements	Get support for all aspects of Internet Explorer settings through Group Policy, greatly easing management across an enterprise.		✓	✓
Internet Explorer Administration Kit	OEMs and deployment specialists can pre-package Internet Explorer with customized settings or additional programs for their users. The IEAK7 now includes an .MSI installer to simplify enterprise deployment.		✓	✓
Improved AJAX support	This support improves the implementation of the XMLHttpRequest as a native Javascript object for rich AJAX-style applications. While Internet Explorer 6 handled XMLHttpRequest requests with an ActiveX control, Internet Explorer 7 exposes XMLHttpRequest natively. This improves syntactical compatibility across different browsers and allows clients to configure and customize a security policy of their choice without compromising key AJAX scenarios.		✓	✓
Open Search Extensions	In conjunction with Amazon.com, a set of RSS Simple List Extensions were submitted to the RSS community, and		✓	✓

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	released under the Creative Commons license. Among other features, these extensions greatly simplify development of applications that interact with Open Search-compatible search providers.			
RSS platform	This platform provides rich functionality for downloading, storing, and accessing RSS feeds across the entire operating system, helping more users than ever before embrace RSS. Once a user subscribes to a feed in one application, that subscription and all the associated content are made available across the operating system for any application that wishes to consume it.		✓	✓
Platform compatibility	Internet Explorer 7 is more compatible with top web features than ever before. It supports many new standards on the web to make browsing a richer experience for which it is easier to develop. Every new feature in Internet Explorer 7 also offers full control through Group Policy, which makes the administration of Internet Explorer a breeze even for the largest enterprises.		✓	✓
Stay Safer Online	Protection from threats, including malware and phishing, as well as emerging threats that can compromise computer without the users knowledge.			✓
Accelerators	Accelerators in Internet Explorer 8 help you quickly perform your everyday browsing tasks without navigating to other websites to get things done. Simply highlight text from any webpage, and then click the blue Accelerator icon that appears above your selection to obtain driving directions, translate and define words, email content to others and search with ease			✓
Search Suggestions	The new search capabilities in Internet Explorer 8 will offer relevant suggestions as you type words into the search box to help save time. Click on a suggestion at any time to immediately execute the search without having to type the entire word or phrase.			✓
Visual Suggestions	Internet Explorer is partnering with top search providers like Bing, Wikipedia, Yahoo!, Amazon, and more to deliver visual suggestions that provide you with immediate answers. For example, typing "Isaac Newt" with Wikipedia visual suggestions will instantly show you a preview of the results directly in the Search Box drop-down.			✓
Better find on page	Completely redesigned Find On Page toolbar, which is activated by pressing Ctrl-F or choosing Find On Page from the Edit menu or Search box drop-down. Press the Alt key if you do not see the Edit menu option. The toolbar is integrated below the tab row, so that it does not obscure any content on the page. Instead of waiting for you to type an entire search term and hit Enter, the toolbar searches character-by-character as you type. Matches are highlighted in yellow on the page so that they're easy to identify.			✓
Increased performance	The script engine is significantly faster than in previous versions, minimizing the load time for webpages based on JavaScript or Asynchronous JavaScript and XML (AJAX)			✓
Smarter Address Bar	Can't remember the full address of a new website you visited last week? Type a few characters in the new Address Bar and Internet Explorer 8 will automatically recall sites you've already visited based on your entry. It searches across your History, Favorites, and RSS Feeds, displaying matches from the website address or any part of the URL. As you type, matched characters are highlighted in blue so you can identify			✓

	them at a glance. In addition, you can delete any address in the drop-down box by clicking on the red X. This is especially useful for getting rid of misspelled URLs.			
Web Slices	Keep up with frequently updated sites directly from the new Favorites Bar. If a Web Slice is available on a page, a green Web Slices icon will appear in the Command Bar. Click on this icon to easily subscribe and add the Web Slices to the Favorites Bar so you can keep track of that "slice" of the web			✓
Compatibility View	Internet Explorer 8 is a new release and some websites may not yet be ready for the new browser. Click the Compatibility View toolbar button to display the website as viewed in Internet Explorer 7, which will correct display problems like misaligned text, images, or text boxes			✓
Enhanced tabbed browsing	Internet Explorer 8 is a new release and some websites may not yet be ready for the new browser. Click the Compatibility View toolbar button to display the website as viewed in Internet Explorer 7, which will correct display problems like misaligned text, images, or text boxes			✓
Improved favorites and history management	Now there's a better place to keep track of top favorites. Save Favorites, RSS Feeds, and Web Slices to the Favorites Bar that appears across the top of the browser, quickly navigating to the sites and content. Search for pages in history by typing keywords, making it easier to locate sites when browsing history			✓
Redesigned New Tab page	The New Tab page loads quickly and provided links make it easier to get started on your next browsing activity: Use an Accelerator: Now you can use an Accelerator using any text you have copied to the clipboard. Browse with InPrivate: Start InPrivate Browsing and your browsing activities, history and cookies are not retained, and third party web content providers may be hindered from tracking your online activities without your consent. Reopen closed tabs: Reopen a tab that you've closed in your current browsing session, which can be helpful when a tab is accidentally or prematurely closed. Reopen your last browsing session: Reopen all tabs that were open when Internet Explorer 8 was last closed, which can be useful if you accidentally close the browser.			✓
Improved Zoom	Adaptive Page Zoom improves upon traditional zoom-in/zoom-out functionality in the browser by intelligently relaying out the page content and eliminating the need to scroll left and right. This will improve your ability to magnify pages with small fonts and be able to read more on the web			✓
A better back button	When using rich applications such as mapping on the Internet, you may be taken to the beginning of the application instead of the previous page when you hit the back button. Now when you hit the back button, more pages will behave the way you expect			✓
SmartScreen	The SmartScreen filter is a set of technologies designed to help protect users from evolving web and social engineering threats. If the SmartScreen filter detects a malicious website, Internet Explorer 8 will block the entire site. It can also provide a "surgical block" of malware or phishing hosted on legitimate websites – blocking just the malicious content without affecting the rest of the site.			✓
Cross Site Scripting (XSS) Filter	Cross-site scripting attacks try to exploit vulnerabilities in the websites you use. In this attack, you might receive an email			✓

	that contains a tampered website address. Once you click on the link, you are directed to a legitimate website that has been compromised to contain malicious content that can capture keystrokes and record your login and password. These attacks have emerged as a leading online threat so Internet Explorer 8 includes a cross-site scripting filter that can detect these types of attacks and disable the harmful scripts.			
Click-jacking prevention	Click-jacking is an emerging online threat where an attacker's webpage deceives you into clicking on content from another website without you realizing it. For example, it might hide a legitimate webpage as a "frame" inside a malicious page. When you click in the malicious page, you're actually clicking on something else: buying something from the site, changing some settings on your browser or computer, or viewing advertisements that cybercriminals get paid for. It's a complicated attack, but Internet Explorer 8 allows website developers to protect their sites from these kinds of attacks by preventing their legitimate pages from being "framed."			✓
Domain highlighting	Domain Highlighting lets you more easily interpret web addresses (URLs) to help you avoid deceptive and phishing sites that attempt to trick you with misleading addresses. It does this by highlighting the domain name in the address bar in black, with the remainder of the URL string in gray, making for easier identification of the sites true identity.			✓
InPrivate Filtering	InPrivate Filtering provides users an added level of control and choice about the information that third party websites can potentially use to track browsing activity.			✓
Data Execution Prevention (DEP)	Data Execution Prevention (DEP), on by default in Internet Explorer 8 in Windows Vista Service Pack 1, is a security feature that can help prevent damage to your computer from viruses and other security threats by preventing certain types of code from writing to executable memory space.			✓
InPrivate Browsing	InPrivate Browsing in Internet Explorer 8 helps prevent your browsing history, temporary Internet files, form data, cookies, and usernames and passwords from being retained by the browser, leaving no evidence of your browsing or search history.			✓
Enhanced delete browsing history	Now when deleting browsing history, you can choose to preserve cookies and temporary Internet files for sites in your Favorites folder. This helps to protect your information and privacy while preserving your data on your trusted favorite sites. Your preferences and cookies are preserved, helping you to get to your trusted sites faster with greater confidence			✓
Automatic crash recovery	Tab isolation If a website or add-on causes a tab to crash in Internet Explorer 8, only that tab is affected. The browser itself remains stable and other tabs remain unaffected, thereby minimizing any disruption to your browsing experience. Crash recovery If one or more of your tabs unexpectedly closes or crashes, your tabs are automatically reloaded and you are returned to the site you were on before the crash.			✓



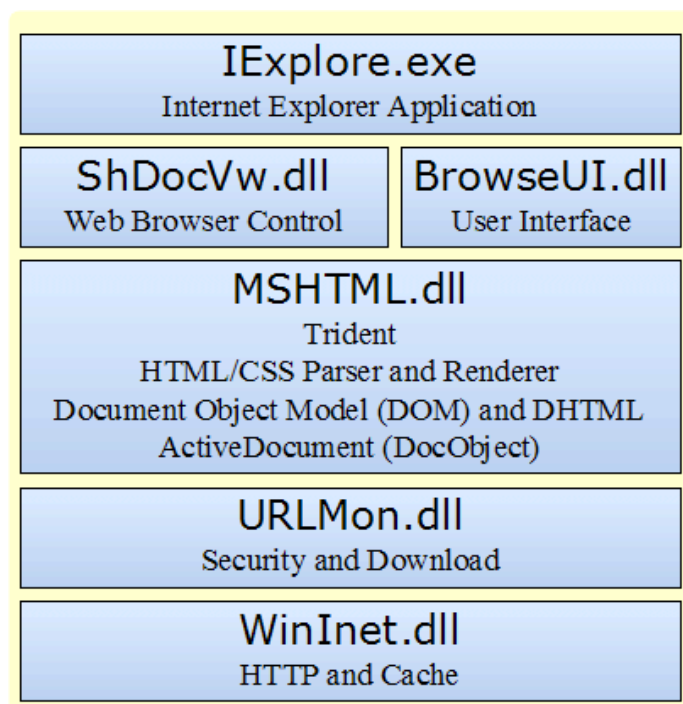
Check your understanding

1. Name some new features added to IE 7.0.
2. Name some new features added to IE 8.0.
3. Explain the following features of Internet Explorer:
 - InPrivate Browsing
 - XSS Filter
 - Phishing Filter
 - XSS Filter

Internet Explorer Architecture

Windows Internet Explorer's modular architecture enables us to understand some of its components as well as extend and enhance the browser's functionality. Examples of extensions to Internet Explorer include custom shortcut menus, browser toolbars, Microsoft ActiveX controls, active documents, and binary behaviors.

Essential to the browser's architecture is the use of the Component Object Model (COM), which governs the interaction of all of its components and enables component reuse and extensibility. The following diagram illustrates Internet Explorer's major components.



- **IEExplore.exe** is a small application that relies on the other main components of Internet Explorer to do the work of rendering, navigation, protocol implementation, and so on.
- **Browsui.dll** provides the user interface to Internet Explorer. Often referred to as the "chrome," this DLL includes the Internet Explorer address bar, status bar, menus, and so on.
- **Shdocvw.dll** provides functionality such as navigation and history, and is commonly referred to as the WebBrowser control.
- **Mshtml.dll** takes care of its HTML and Cascading Style Sheets (CSS) parsing and rendering functionality. Mshtml.dll exposes interfaces that enable you to host it as an active document.
- **Urlmon.dll** offers functionality for MIME handling and code download.
- **WinInet.dll** is the Windows Internet Protocol handler. It implements the HTTP and File Transfer Protocol (FTP) protocols along with cache management.



Check your understanding

1. Describe the major components of Internet Explorer.

Extending Internet Explorer

The three types of extensions are:

Browser Extensions

This class of extensibility adds to the UI of the browser and is not directly related to the viewable content of Web pages. It includes add-on functionality that users might install to enhance their browsing experience. Its features are:

- **Shortcut menu extensions.** You can extend Internet Explorer by adding options to the shortcut menu by adding registry keys that link the menu command to the task to be performed
- **Toolbars.** Custom toolbars can complement Internet Explorer's standard toolbars. An example is the MSN Toolbar.
- **Explorer Bars.** Use Explorer Bars to reserve part of the browser window, either the side or the bottom of the browser window. For more information, see *Creating Custom Explorer Bars, Tool Bands, and Desk Bands*.
- **Browser Helper Objects.** A Browser Helper Object (BHO) runs within Internet Explorer and offers additional services, often without any obvious user interface. For example, a BHO might highlight terms of interest to the user, such as addresses.

Content Extensions

This category of extensions is invoked by Internet Explorer content. It includes ActiveX controls, binary behaviors, and active documents. Its features are:

- **Active Documents.** Active documents are sometimes called Doc Objects. If you plan to replace HTML with your own rendering of specific content, an active document may be appropriate. Internet Explorer's support for active documents includes the ability to merge menus so that Internet Explorer's menus reflect the functionality available in the new active document.
- **ActiveX Controls.** ActiveX controls are a very powerful mechanism for extending the abilities of HTML.
- **Behaviors.** The Behavior technology in Internet Explorer allows even deeper integration with the HTML rendering engine than ActiveX controls. There are two categories of behaviors. First are script-based behaviors using .htc files. While these are useful, they are not true extensions to browser functionality. However, you may want to consider script-based behaviors with .htc files before using a full browser extension as they provide a way to componentized and reuse HTML content.

Binary behaviors are the second category of behavior extensions. Binary behaviors are similar to ActiveX controls in that they are COM objects, but they are more deeply integrated with the HTML parser and renderer.

- **Windows Forms Controls.** As managed code and the .NET Framework have been established as the developer framework for the future, they are also available to developers wishing to develop controls for Internet Explorer.
- **Pluggable Protocols.** Pluggable protocols Internet Explorer to support custom communication protocols and are generally specific to the data they support.

Hosting and Reuse

Two commonly components that can be reused are shdocvw.dll (the Web Browser control) and mshtml.dll ("Trident").

In the majority of situations, it is better to directly host shdocvw.dll than mshtml.dll. This is because shdocvw.dll supports in-place navigation and history. If you host mshtml.dll directly, you gain the use of an HTML and CSS parser and renderer, but you cannot take advantage of the browser's other capabilities.

An example of a situation in which you might want to host mshtml.dll directly is the scenario of an e-mail application and HTML-based e-mail. In this scenario, the e-mail is displayed within the application, but if a user clicks on a hyperlink within the e-mail, the user would expect a separate browser instance to open rather than the e-mail application navigating in place. This is how applications such as Microsoft Outlook and Outlook Express handle HTML-based e-mail.



Check your understanding

1. Describe the three types of extensions available in Internet Explorer.
2. What are the features of Browser extensions?
3. What are the features of Content extensions?

Other components of Internet Explorer

Information Bar

The Internet Explorer Information Bar is a new User Interface (UI) that is included in Microsoft Windows XP Service Pack 2 (SP2). The Information Bar is displayed, when necessary, just below the Address Bar portion of the Internet Explorer interface. It is used to notify the pending display content which is being considered unsafe by the browser.

When the Information Bar appears, a text message is included based on the type or types of content being withheld. The text describes a blocked pop-up window as well as other content blocked.



Pop up Blocker

Pop up blocker prevents pop up to appear when you visit a website. When the pop up blocker is enabled it displays a message "Pop up has been blocked to see this pop up or additional options click here".

How to enable Pop up Blocker:

Click **Tools** in Internet Explorer click to pop-up Blocker then select:

- **Turn off Pop up Blocker** to turn off pop up Blocker
- **Turn On Pop up Blocker** to turn on pop up Blocker

How to configure Pop up Blocker:

The Pop-up Blocker can be configured by clicking any of the below options:

- Information bar
- Icon in the Status bar
- Settings option available in the Tools menu under Pop-up Blocker

When you select the Settings option in the menu, the Pop-up Blocker Settings interface opens. This interface enables you to change settings for notification when pop-ups occur as well as the filtering level. The filtering level controls the level of restriction to apply to pop-ups, such as **block all** and **block most**.

Manage Add-Ons

Internet Explorer Add-ons are, installed software components that load with Internet Explorer. These components could be third-party ActiveX controls that extend browser functionality, or provide special user interface elements in Internet Explorer. In order to access Manage Add-Ons in Internet Explorer, click Tools and click Manage Add-Ons. The interface allows add-ons to be individually enabled or disabled

You can use the Add-On management interface to allow previously blocked controls. To do this, perform the following steps:

1. Open **Internet Options**
2. On the **Programs** tab, click **Manage Add-Ons**.
3. Select the blocked object and click the **Allow** button.



Check your understanding

1. What is Information Bar in Internet Explorer?
2. How will you enable and configure the pop-up blocker?
3. What are IE add-ons and how will you manage them?

Configuring Internet Explorer 6.0

To configure IE 6.0, perform these steps:

1. Right-click the Internet Explorer icon in the Start menu or on the desktop and then select **Internet Properties**.

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2. In Internet Explorer, from the **Tools** menu, select **Internet Options**
3. In Control Panel, select **Network And Internet Connections**, and then select **Internet Options**.



General Settings

Configuring the Home Page

A home page is the website that opens automatically when you start Internet Explorer. You can customize the home page in the following ways:

- Type an address: Type any Uniform Resource Locator (URL) in the Address box to use that URL as the home page.
- Use Current: Sets the home page to the page that Internet Explorer displays.
- Use Default: Sets the home page to default, which is generally <http://www.msn.com>.
- Use Blank: Configures Internet Explorer to not display a home page at all

Managing Temporary Internet Files

Internet Explorer automatically stores (or caches) copies of Web pages that you access to a folder on the local hard disk as called temporary Internet files. The next time you access the same page, Internet Explorer can load the page from the local cache rather than having to connect to the Web server and download it again. However, problems occur when the Temporary Internet pages cache is full:

- You cannot use the Save Picture As command to save a graphics file to his hard disk as a JPEG or GIF, but the file can be saved as a BMP file. The file name might also appear as Untitled.
- Problem viewing History files by date, or no data appears.

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- When you select Source on the View menu to view the source for a Web page, the source code does not appear as expected.
- When you visit the Windows Update Product Catalog website, you receive the message Cannot Display Page.
- You get unrecoverable errors (faults) when using Internet Explorer.

You can delete temporary Internet files by clicking the **Delete Files** button on the **General** tab of the Internet Options dialog box.

Internet Explorer can also be customized the way it stores and uses temporary Internet files using the Settings button. There are four ways to control when Internet Explorer checks for newer versions of the pages that are stored in its local cache:

- **Every Visit To The Page** This option causes Internet Explorer to connect to the website and check to see whether the page has been updated each time you access the page.
- **Every Time You Start Internet Explorer** This option causes Internet Explorer to connect to the website and check to see whether the page has been updated only the first time you access the page in any given Internet Explorer session.
- **Automatically** This option is similar to the Every Time You Start Internet Explorer option, except that Internet Explorer monitors how often pages change. If Internet Explorer determines that a page does not change very often, it checks for updates less frequently than once per session.
- **Never** This option causes Internet Explorer to never check for updated versions of the page unless you manually refresh the page.

The Settings dialog box also allows to control the amount of disk space that temporary Internet files can consume on a hard disk and the folder that Internet Explorer uses to store the files. Consider moving the temporary Internet files to another location only if the drive on which they are currently stored runs low on disk space. To view the contents of the folder, click View Files; to view downloaded program files, click View Objects.

Managing Internet Explorer History

Internet Explorer automatically stores a list of links to pages that you have recently visited in a folder named History. You can access the recent history by clicking the History button on the Internet Explorer toolbar.

Use the Days To Keep Pages In History option to specify the number of days the history is maintained. The default value is 20 days. Setting this value to 0 disables the History feature. Use the Clear History button to clear the current History list.

Controlling Internet Explorer's Appearance

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The remaining options on the General tab of allow you to alter the appearance of Internet Explorer and the Web pages it displays. Available options are as follows:

- **Colors** Allows manipulating the colors Internet Explorer uses on Web pages for text, background, and hyperlinks.
- **Fonts** Allows to specify the font Internet Explorer uses to display text on Web pages that do not specify a particular font.
- **Languages** Allows to control which language is used to display content if a site offers more than one language.
- **Accessibility** Allows controlling additional settings about how Internet Explorer displays colors and fonts. In particular, you can have Internet Explorer ignore settings that are specified by Web pages and use settings you configured. This feature is useful for users who have configured accessibility options.



Check your understanding

1. How can you configure an Internet Explorer Home Page?
2. Describe the process of managing temporary Internet files in Internet Explorer.
3. What happens if temporary Internet files folder gets full?
4. How can you manage IE history?
5. Describe the process of managing the IE appearance.

Cookies

A cookie is a text string that is included with Hypertext Transfer Protocol (HTTP) requests and responses. They are used to maintain state information as you navigate different pages on a Web site or return to the Web site at a later time. Cookies are defined in RFC 2965, "HTTP State Management Mechanism." Suppressing or blocking cookies may prevent some Web services from working correctly.

Types of Cookies

Persistent These cookies remain on a computer even when Internet Explorer is closed, the user has disconnected from the Internet, or the computer has been turned off.

Temporary These cookies are stored on a computer only during a single browsing session and are deleted when Internet Explorer is closed.

First-party These cookies are sent to a computer from the website being viewed. They might be persistent or temporary and are generally harmless.

Third-party These cookies are sent to a computer from a website that is not currently being viewed. Third-party cookies might be persistent or temporary, and most are blocked by default by using the Medium privacy setting.

Session A session cookie is a temporary cookie that is deleted from a computer when Internet Explorer is closed.



Check your understanding

1. What are Internet cookies? Explain its various types.

Security Settings

The Security tab provides a method of controlling security based on security zones. Security zones contain a list of websites deemed to have similar security settings requirements. The four zones provided are as follows:

- **Internet** Contains all websites that you have not placed in other zones.
- **Local Intranet** Contains all websites that are on the local network.
- **Trusted Sites** Contains websites that are believed to be safe.
- **Restricted Sites** Contains websites that could potentially be harmful

Troubleshooting Security Zones

The Internet zone contains all websites. Local Intranet, Trusted Sites, and Restricted Sites zones do not include any sites by default and thus must have websites manually placed in them. Each of the four zones has default security settings (Low, Medium-Low, Medium, and High) that determine the type of content that can be downloaded and run (such as ActiveX controls) and what users are able to do (such as install desktop items). For any zone, you can change the security level and modify the security defaults.

Security Zone	Setting	Security Level
High (default for the Restricted Sites zone)	Disable	Download unsigned ActiveX controls; initialize and script ActiveX controls not marked as safe.
	Enable	Run ActiveX controls and plug-ins; script ActiveX controls marked safe for scripting
	Prompt	Download signed ActiveX controls; install desktop items.
Medium (default for the Internet zone)	Disable	Download unsigned ActiveX controls; initialize and script ActiveX controls not marked as safe.
	Enable	Run ActiveX controls and plug-ins; script ActiveX controls marked safe for scripting.

	Prompt	Download signed ActiveX controls; install desktop items.
Medium-Low (default for the Local Intranet zone)	Disable	Download unsigned ActiveX controls; initialize and script ActiveX controls not marked as safe
	Enable	Run ActiveX controls and plug-ins; script ActiveX controls marked safe for scripting.
	Prompt	Download signed ActiveX controls; install desktop items.
Low (default for the Trusted Sites zone)	Disable	Download unsigned ActiveX controls; initialize and script ActiveX controls not marked as safe.
	Enable	Run ActiveX controls and plug-ins; script ActiveX controls marked safe for scripting
	Prompt	Download signed ActiveX controls; install desktop items.

Default security levels for each zone are as follows:

- The Internet zone has a Medium security level.
- The Local Intranet zone has a Medium security level.
- The Trusted Sites zone has a Low security level.
- The Restricted Sites zone has a High security level.

Changing Internet zone defaults

(This same technique works to change any zone's default settings)

1. Open Internet Explorer, and from the **Tools** menu, select **Internet Options**.
2. From the **Security** tab, select the Internet zone if it is not selected already.
3. Click **Default Level**, and move the security slider that appears up or down to change the default security setting for the zone. It is best to leave the Internet zone at either Medium (the default) or High. Lower settings will reduce security; higher settings will reduce functionality
4. Select **Custom Level**.
5. In the Security Settings dialog box, scroll down the list to select the item to change. Make the appropriate change by selecting the desired option. Click **OK** to close the Security Settings dialog box, and click **OK** to close the **Internet Options** dialog box.

Adding websites to the Trusted Sites zone

(This same technique works to add a site to the Restricted Sites zone.)

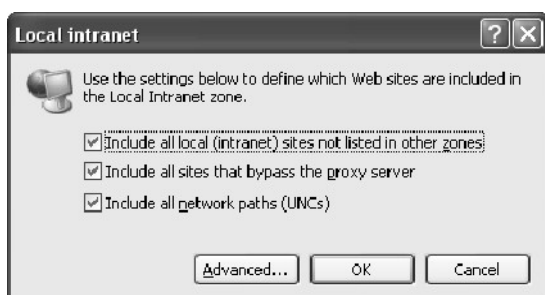
1. Open Internet Explorer, and from the **Tools** menu, select **Internet Options**.
2. Select the **Security** tab.
3. Select **Trusted Sites**, and choose **Sites**.

4. In the **Add This Web Site To The Zone** box, type the address to add. If adding a trusted site, you must begin the website URL with https://, which denotes a secure site. Click Add.
5. Click **OK** to close the Trusted Sites dialog box, and click **OK** again to close the Internet Options dialog box.

Adding a website to the Local Internet zone

To add a website to the Local Intranet zone, follow these steps:

1. Open Internet Explorer, and from the **Tools** menu, select **Internet Options**.
2. Select the **Security** tab.
3. Select **Local Intranet**, and then choose **Sites**.
4. In the Local Intranet dialog box, select the websites that should be included in the Local Intranet zone.



5. In the Local Intranet dialog box, choose **Advanced**.
6. In the **Add This Web Site to the Zone** box, type any other websites to add. Click **Add** to add each.
7. Click **OK** in the Local Intranet dialog box, click **OK** again in the first Local Intranet dialog box, and click **OK** to close the Internet Options dialog box.



Check your understanding

1. What are the four security zones available in Internet Explorer?
2. What will the security level is a security zone has been set to high level and enabled?
3. How can you change the default Internet zones?
4. What is the procedure of adding a website to Trusted Sites zone and Local Internet zone?

Privacy Settings

Privacy is considered impacted if a cookie is suppressed or blocked or a cached file is retrieved that has a history of privacy violations. The first time privacy is impacted, you will receive the Privacy dialog. You can change your privacy preferences via a slider on the Privacy tab in Internet Options. The slider has six levels:

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- **Block All Cookies:** Block All Cookies Does not accept or send any cookies, both session and persistent.
- **High:** In both the First party and third party contexts, The High setting denies all persistent cookies with no compact policy, persistent cookies, and unsatisfactory cookies. The High setting accepts persistent cookies with other policies, Session cookies, and leashes Legacy cookies.
- **Medium High:** Here the first party context persistent cookies with no compact policy are leashed. Unsatisfactory cookies are denied. Persistent policy cookies and session cookies are both accepted and legacy cookies are leashed.
- **Medium:** It is the default Internet Explorer 6.0 setting, Persistent cookies with no compact policy are leashed in the first party context. Persistent and unsatisfactory cookies are downgraded, Persistent cookies with policies and session cookies are accepted, and legacy cookies are leashed.
- **Low:** Here the low setting, persistent cookies with no policy are leashed in the first party context. Persistent cookies, unsatisfactory cookies, persistent cookies with policies, and session cookies are all accepted.
- **Allow all cookies:** It allows all cookies in the first and third party contexts.

You also have the option to define cookie management practices on a per site basis. This will override the default privacy preference set with the slider, unless you move the slider to Accept All Cookies or Block All Cookies.

How to block and allow cookies in Internet Explorer 7/8

Step 1: Block or allow all cookies

- Click the **Start** button and open Internet Explorer 7/8 application.
- Click the **Tools** button and then click **Internet Options**.
- Click the **Privacy** tab and then under **Settings** move the slider to the top to block all cookies or to the bottom to allow all cookies, and then click **OK**.

Note: *Blocking cookies might prevent some web pages from displaying correctly.*

Step 2: Block or allow cookies from specific websites

- Click the **Start** button and open Internet Explorer 7/8 application.
- Click the **Tools** button and then click **Internet Options**.
- Click the **Privacy** tab and then move the slider to a position between the top and bottom so that you are not blocking or allowing all cookies.
- Click **Sites**.
- In the Address of website box, type a website address and then click **Block** or **Allow**.
- Repeat step 5 for each website you want to block or allow and then Click **OK** button.
- Move the slider back to the original position and then click **OK**.

Advanced Privacy Settings

To manually override automatic cookie handling in the Internet zone, click the Advanced button on the Privacy tab. The Advanced Privacy Settings dialog allows you to configure cookies globally in the Internet zone to Accept, Prompt, or Block.



Check your understanding

1. What are six different levels of changing privacy preferences in Internet Explorer?
2. How to block and allow cookies in Internet Explorer 7/8?
3. What are advanced privacy settings available in Internet Explorer?

Content Settings

The Content tab of the Internet Options dialog box provides controls for managing Content Advisor, certificates, and the storage of personal information. Content Advisor controls the display of websites based on rating levels defined by the Internet Content Rating Association (ICRA), <http://www.icra.org/>. The most common use for Content Advisor is on a home computer on which parents want to control the websites that their children can view.

Content Advisor can be used to configure the following:

- A supervisor password, which prevents unauthorized users from changing Content Advisor settings.
- Rating levels for language, nudity, sex, and violence. Users must type in the supervisor password to access sites that exceed the configured rating levels.
- Specific sites that Internet Explorer cannot display, regardless of the rating level, unless the user enters the supervisor password.

Managing Certificates The Certificates section of the Content tab provides a method of managing the security certificates that are used to establish secure, encrypted connections using the Secure Sockets Layer (SSL) protocol. Certificates contain the information required to establish a secure connection, such as identification information and encryption keys.

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Clear SSL State allows removing all client authentication certificates from the Secure Sockets Layer (SSL) cache. During an SSL session (using https://), when a server asks for a certificate to verify that you are who you say you are, the chosen certificate is saved in a cache. The chosen certificate can remain in the cache until you restart your computer.

Certificates button allows you to add and remove personal certificates and to configure what types of server certificates are acceptable. If a server requests a secure connection, but Internet Explorer does not recognize the server's certificate as acceptable, the user receives a warning message and can either allow the connection to continue or terminate the connection before any personal data is transmitted to the server.

When a secure connection is established with a server through Internet Explorer, a lock icon appears in the status bar (lower-right corner of the window) and the protocol in the address bar might be listed as HTTPS (HTTP Secure) instead of HTTP. In some circumstances, a secure connection is established, but the protocol remains HTTP because the secure link is being established through a secondary connection, and the address bar is not updated. However, the lock icon always appears when a secure connection has been established.

Personal Information Management

The Personal Information section of the Content tab allows configuring the following settings:

AutoComplete AutoComplete helps users work, browse, and purchase items on the Internet faster than normal by automatically listing possible matches for Web addresses, forms, and user names and passwords on forms.

My Profile Click My Profile to open Profile Assistant that stores personal information, which can then be sent automatically to a website when the website requests the information. Profile Assistant saves the information in a secure location on the client's computer and prompts the user to send the information if the website supports this technology. The user can accept or deny this service each time she encounters it. This saves time for the user because she does not have to enter the same information each time she visits a new website, and allows her to determine when and for what sites Profile Assistant is used.



Check your understanding

What are the functions of following Content tab buttons present in Internet Options:

1. Clear SSL State
2. Certificates
3. AutoComplete
4. My Profile

Connection Settings

The Connections tab allows controlling how Internet Explorer connects to the Internet. If the computer uses a dial-up or Virtual private network (VPN) connection to connect to the Internet, those connections are shown in the Dial-up And Virtual Private Network Settings section.

After selecting one of the displayed connections, you can also configure the following options for that connection:

- **Never Dial A Connection** Requires that you manually establish a connection before opening Internet Explorer.
- **Dial Whenever A Network Connection Is Not Present** Causes Internet Explorer to use the current default connection if it detects that there is no existing connection to the Internet.
- **Always Dial My Default Connection** Causes Internet Explorer to always dial the current default connection.

To configure Internet Explorer to use a proxy server for dial-up and VPN connections, select the connection and then click Settings. To configure Internet Explorer to use a proxy server for local area network (LAN) connections, click LAN Settings. Available proxy server configuration options are as follows:

Automatically Detect Settings Allows the client to automatically receive proxy server configuration from a properly configured Dynamic Host Configuration Protocol (DHCP) or Domain Name System (DNS) server.

User Automatic Configuration Script Specifies the path to a configuration script containing proxy server information.

Use a Proxy Server for This Connection Allows you to enter the address of the proxy server and the port that Internet Explorer should use to connect to the proxy server.

Bypass Proxy Server For Local Addresses Allows the client to connect directly to an address on the local network (such as an internal company Web server) instead of connecting to the proxy server.



Program Settings

The Programs tab allows configuring the programs that are associated with particular services.

The Programs tab also contains a Manage Add-Ons button. With Windows XP Service Pack 2 installed, Internet Explorer prompts you when add-on software tries to install itself into Internet Explorer. You can view and control the list of add-ons that Internet Explorer can load. Internet Explorer also attempts to detect crashes that are related to add-ons. If an add-on is identified, this information is presented to the user and the user can disable the add-ons to prevent future crashes.

In the Manage Add-Ons dialog box, from the Show drop-down list, select one of the following options:

- **Add-Ons Currently Loaded:** This option lists the add-ons that have been loaded into memory within the current Internet Explorer process and those which have been blocked from loading. This includes ActiveX controls that were used by Web pages that were previously viewed within the current process.
- **Add-Ons That Have Been Used By Internet Explorer** This option lists all add-ons that have been referenced by Internet Explorer and are still installed.

At the bottom of the Programs tab, you find an option named Internet Explorer Should Check to See Whether It Is the Default Browser. When you enable this option, Internet Explorer checks to see whether it is configured as the default browser each time you open the program.



Check your understanding

1. Describe different configuration options available for an Internet Connection through Internet Options.
2. What are the options available to manage add-ons?

Advanced Settings

The Advanced tab allows configuring a variety of Internet Explorer settings. The exact options that are available on this tab vary, depending on whether additional components have been installed. Advanced settings are divided into categories such as Accessibility, Browsing, Multimedia, and Security.

Browsing: Enable Personalized Favorites Menu When enabled, Favorites that you have not recently accessed are hidden from view and are accessible by clicking the down arrow at the bottom of the Favorites menu.

Browsing: Enable Third-Party Browser Extensions (requires restart) Clearing this option disables non-Microsoft browser extensions, which can be useful when troubleshooting problems with Internet Explorer. Often, browser extensions can cause Internet Explorer to crash or have problems displaying Web pages.

Browsing: Enable Visual Styles On Buttons And Controls In Web Pages When enabled, button and control styles in Internet Explorer match those set in Display properties.

Browsing: Notify When Downloads Complete Enabling this option causes Internet Explorer to display a message at the end of a file download, indicating that the download is complete.

Browsing: Show Friendly HTTP Error Messages Web servers send error messages to browsers when problems occur. When this option is enabled, Internet Explorer will display a detailed message outlining potential solutions for the problem. When this option is disabled, Internet Explorer shows only the error number and name of the error.

Browsing: Underline Links This option controls the way Internet Explorer displays hyperlinks. Available options are Always (links are always underlined), Hover (links are underlined when the mouse is moved over them), or Never (never underlines links).

Browsing: Use Inline Autocomplete When this option is enabled, Internet Explorer completes what you are typing in the address bar based on previous entries.

Multimedia: Enable Automatic Image Resizing When this option is enabled, Internet Explorer automatically resizes large images so that they fit in the browser window.

Multimedia: Play Animations In Web Pages Enabling this option allows Internet Explorer to display animated pictures. These animations are often slow to load and distracting. Consider clearing this option for smoother access.

Multimedia: Show Image Download Placeholders When this option is enabled, Internet Explorer draws placeholders for images while they are downloading. This process allows the items on the page to be properly positioned before images are fully downloaded.

Multimedia: Show Pictures When this option is enabled, Internet Explorer shows pictures normally. For users with slow connections, images can take a long time to download, so you can increase perceived performance by clearing this option.

Printing: Print Background Colors And Images When this option is selected, background colors and images will be printed, which can slow down printing and affect the quality of printing (depending on the printer's capabilities).

Security: Empty Temporary Internet Files Folder When Browser Is Closed Enabling this option causes Internet Explorer to delete temporary Internet files when you close Internet Explorer.

Security: Warn If Changing Between Secure And Not Secure Mode When enabled, Internet Explorer will warn the user when switching from a secure site to a nonsecure site. This warning can prevent the user from accidentally providing personal information across a nonsecure connection.

Security: Warn If Form Submittal Is Being Redirected Enabling this option causes Internet Explorer to warn the user if information entered into a form is being redirected to a website other than the one that is being viewed.



Check your understanding

1. Name and explain the options available in Advanced tab of Internet Explorer.

Troubleshooting IE 6.0

While using IE 6.0, you may encounter different issues such as following:

- Slow Performance
- Web Pages Not Displayed Correctly
- Page Cannot Be Displayed (PCBD)

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- Secure Website Problems
- Spyware & Adware
- Printing Issues

Page Cannot Be Displayed (PCBD) Error

Possible cause of getting page cannot be displayed could be due to internet connectivity issue, network related issue, internet settings issue, third party software issue, internet explorer configuration issue, damaged or missing core windows files.

How to Solve?

Test other known good sites

Start Internet Explorer. Type one of the following addresses in the Address bar:

- <http://www.microsoft.com>
- <http://www.msn.com>
- <http://www.hotmail.com>

If the problem does not occur when you type one of these addresses in the Address bar, If the problem does occur when you type one of these addresses in the Address bar, there may be a conflict with another application. Continue with the following steps.

Verify connectivity

Make sure that the cables that connect the computer to the modem (this includes cable, DSL and dial-up modems) are secure and that there is correct activity from the modem.

Run the Network Diagnostics Tool

1. Click **Start**, and then click **Help and Support**.
2. Click **Use Tools** to view your computer information and diagnose the problem.
3. Click **Network Diagnostics**.
4. Click **Set Scanning Options**. Click to select every check box except the **Verbose** check box.
5. Click **Save Options**, and then click **Scan your System**.
6. Expand IP address. Make a note of the IP address that is listed.
 - If the IP address which starts with 169. x . x . x , Windows has assigned you an automatic IP because it did not receive one from your Internet service provider. This prevents you from accessing the Internet.
 - If there are any failures, or if you receive an Automatic Private IP address (APIPA) 169. x . x . x address, start with Section 1 because there may be a hardware configuration issue or a hardware issue.
 - If you do not receive an error, and you receive an IP address that starts with any other number, you may be experiencing a software conflict or a configuration issue. Start with Section 2.

Section 1: Connectivity issues or network-related issues

Part 1: Power cycle the modem or router

It is sometimes possible that your IP settings or configurations that you receive from your Internet service provider are misconfigured or have to be updated. Power cycling the modem or router updates these settings.

1. Disconnect the cable that goes from the computer to the modem.
2. Turn off the modem. If the modem does not have a power switch, disconnect the power.
3. Wait several minutes. Then, turn on the modem, connect the cable from the computer to the modem, and restart the computer.
4. Test your connection again and see whether you can browse the Internet.

Part 2: Verify firewall or router settings

If you connect to the Internet by using a router, it is possible that the configuration settings in the device have changed or have to be updated. To determine whether the router may be in conflict, you can connect your computer directly to the modem or Internet connection to bypass the router.

Enable the Windows Firewall.

To enable the Internet Connection Firewall in Windows XP without SP2, follow these steps:

1. Click **Start**, and then click **Control Panel**.
2. If you are in **Category View**, click **Network and Internet Connections**.
3. Click **Internet Connections**, right-click Internet Connection, and then click **Properties**.
4. On the **Advanced** tab, click to select the **To protect my computer and network by limiting or preventing access to this computer from the Internet** checkbox, and then click **OK**.

A padlock icon should now appear for the connection you selected. This means that the firewall has been enabled for this connection. If you have multiple connections and are not sure as to which should be selected, enable the firewall on all connections or contact your Internet service provider for more help in determining which is the appropriate connection.

After your computer is connected directly, test Internet Explorer. If you can visit Web sites, contact the router's manufacturer for help in configuring the device. If you are still unable to visit Web sites, go to Part 3.

Part 3: Verify that the network adapter is enabled and working correctly

Make sure your network adapter is compatible with Windows XP. Use device manager to verify that your network adapter is installed correctly and is working correctly. Update the driver if you must.

If you find that the network adapter is not functioning or is incompatible with Windows XP, you may have to contact an independent hardware vendor to purchase a compatible card. If

your card's driver is not installed correctly, you may have to contact the hardware manufacturer for the latest driver update.

To determine if your network adapter is not installed or detected correctly, verify the device in Device Manager. If there is a exclamation mark icon or a question mark icon appears next to the device, double-click the device, and then verify the error that appears.

The following list describes three common error codes and provides possible resolutions:

- **Code 10**

This device cannot start. (Code 10)

If the device has a `FailReasonString` value in its hardware key, that string appears as the error message. The driver or enumerator puts this registry string value there. If there is no `FailReasonString` in the hardware key, you receive the following error message: To resolve this problem, click Update Driver to update the drivers for this device. Click the General Properties tab of the device, and then click Troubleshoot to start the Troubleshooting Wizard.

- **Code 28**

The drivers for this device are not installed. (Code 28)

To resolve this problem, install the drivers for this device, click Update Driver. This starts the Hardware Update Wizard.

- **Code 1**

This device is not configured correctly. (Code 1)

To resolve this problem, update the driver by clicking Update Driver, which starts the Hardware Update Wizard. If updating the driver does not work, see your hardware documentation for more information.

Part 4: Repair the connection

The connection settings may have to be renewed or may be misconfigured. Repairing the connection will reset some configuration settings.

1. Click **Start**, click **Run**, type **ncpa.cpl** , and then click **OK**.
2. Right-click the appropriate network connection, and then click **Repair**.
3. Test your connection.

Part 5: Repair Winsock

These issues may occur if the Winsock registry keys are damaged or corrupted.

1. Click **Start**, click **Run**, type **netsh winsock reset** , and then click **OK**.
2. When the Command Prompt flashes, restart the computer.

On computers that are running Windows XP without Service Pack 2, follow these steps.

Step 1: Delete registry keys

1. Click **Start**, click **Run**, type **regedit** , and then click **OK**.
2. In Registry Editor, locate the following keys:
HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\Winsock
HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\Winsock2
3. Right-click each key, and then click **Delete**
4. When you are prompted to confirm the deletion, click **Yes**.
5. Restart the computer.

Step 2: Install TCP/IP

1. Right-click the network connection, and then click **Properties**.
2. Click **Install**.
3. Click **Protocol**, and then click **Add**.
4. Click **Have Disk**.
5. Type C:\Windows\inf , and then click OK.
6. On the list of available protocols, click **Internet Protocol (TCP/IP)**, and then click **OK**.
7. Restart the computer.

If you are still unable to visit Web sites, go to Part 6.

Part 6: Reset TCP/IP

TCP/IP may have become damaged or some configurations may have been changed. Resetting TCP/IP should reconfigure these settings appropriately. To reset TCP/IP, follow these steps:

1. Click **Start**, click **Run**, type **cmd** , and then click **OK**.
2. At the command prompt, type the following information, and then press **Enter**:
netsh int ip reset filename.txt

Part 7: Verify the Hosts files

Hosts files have been used to redirect Web site names to IP addresses. Some malicious software, such as malware and spyware, can add entries in this file that can prevent you from browsing.

To determine whether the problem is caused by entries in Hosts files, look for Hosts files on the local computer, and then rename all the Hosts files that you find. To do this, follow these steps:

1. Click **Start**, point to **Search**, and then click **For Files and Folders**.
2. In the **All or part of the file name** box, type **hosts** .
3. In the **Look in** list, click the hard disk, and then click **Search**.
4. Click all the Hosts files that are found. If more than one Hosts file is found, select them all.
5. Press **F2**.

6. Type a new name. For example, type **oldhosts** , and then press **ENTER**.

Make a note of the new file name. You may have to change the name back if this does not resolve the issue.

If you are still unable to browse the Internet, go to Section 2.

Part 1: Test in Safe mode with Networking

One thing to note is that any PPPOE connections that require a user name and password will not work from Safe Mode. Most DSL connections and dial-up connections are PPPOE. Therefore, they will not work unless they are persistent connections to the Internet, such as a cable connection.

If you can connect when the computer is in Safe mode, there is usually a third-party tool or program conflict. A clean boot may help you resolve the conflict. Restart the computer in Normal mode and go to Part 2.

If you cannot browse the Internet when the computer in Safe mode, there may be a problem with the network adapter. Go to Section 1. If you have already tried the procedures in Section 1, and the network adapter is working correctly, continue with the following sections.

Part 2: Clean boot Windows XP

If you are running a third-party firewall program, a configuration setting may have changed or may have to be updated. Alternatively, another third-party program may be misconfigured and may be conflicting with Internet Explorer. Follow these steps to identify a conflicting program.

1. Click **Start**, click **Run**, type **msconfig** , and then click **OK**.
2. Click the **General** tab, click **Selective Startup**, click to clear all the check boxes except the **Load System Services** check box.
3. Click the **Services** tab, and then click **Hide all Microsoft Services**.
4. Click **Disable all**.
5. Click **OK**, and select the option to restart.
6. After the computer has restarted, test the Internet connection.

If the connection works, there is a conflict with an program or tool that is loads when the computer starts. To identify the program or tool that is causing the conflict, use the Msconfig tool.

Check to see if a third-party service may be causing the conflict

1. Click **Start**, click **Run**, type **msconfig** , and then click **OK**.
2. Click the **Services** tab, **enable all the services**, and then click **OK**.
3. Restart the computer and test the connection again.

If the connection works, go to the 'Check to see if a third-party program may be causing the conflict' section.

If the connection still does not work, a third-party service is conflicting with Internet Explorer. To identify which one, follow these steps:

1. Click **Start**, click **Run**, type **msconfig**, and then click **OK**.
2. Click the **Services** tab.
3. Enable half the services on the list, and then click **OK**.
4. Restart the computer and test the connection.
5. Continue this process until you identify the service that is conflicting with Internet Explorer. We recommend that you remove or disable the service.

Check to see if a third-party program may be causing the conflict

1. Click **Start**, click **Run**, type **msconfig**, and then click **OK**.
2. Click the **Startup** tab.
Because of the number of entries that may be listed, we recommend that you find the conflicting program by using a process of elimination.
3. Click to select half of the items that are listed, and then click **OK**.
4. Restart the computer, and then test the connection.
5. Continue this process until you have identified the conflicting program.
6. We recommend that you remove the program if you are not using it or configure the program so that it does not start when the computer starts.

If a clean boot process does not identify or resolve the issue, change the settings in the tool so that the computer starts in Normal mode.

Part 3: Test by using a new user account

If you still cannot browse the Internet, there may be some corruption with the user account you are currently using. If you have multiple user accounts on your computer, test this by logging in as a different user. If this resolves the problem, we recommend that you create a new user account and transfer your settings and files to that new account.

If this resolves the problem, transfer your settings from the old account to the new account by copying the files from the old user's My Documents folder or by using the File and Settings Transfer Wizard.

Part 4: Run antivirus software and antispyware software

If you have antivirus software or antispyware software installed, update it and run the software.

After you have determined that your system does not have malicious software installed, test to see if the problem is resolved. If it is not resolved, go to Section 3.

Section 3: Internet Explorer configuration settings

Part 1: Optimize Internet Explorer

By optimizing Internet Explorer, you can clear old files and settings that may be causing conflicts and may be preventing you from connecting to the Internet. To optimize Internet Explorer, follow these steps:

1. In Internet Explorer, click **Tools**, and then click **Internet Options**.
2. Click the **General** tab.
3. Under Temporary Internet files, click **Delete Files**.
4. Click to select the **Delete all offline content** check box, and then click **OK**.
5. Click **Delete Cookies**. When you are prompted to confirm this selection, click **OK**.
6. Click **Settings**.
7. Click **View Objects**.
8. Click **View**, and then click **Details**.
9. If Damaged appears in the Status column for any program file, remove that program file.
10. Close the **Downloaded Program Files** dialog box.
11. In the **Settings** dialog box, click **OK**.
12. Under **History**, click **Clear History**, and then click **Yes** when you are prompted to confirm the selection.
13. In the **Internet Options** dialog box, click **OK**.
14. Try to browse the Internet.

Part 2: Reset default settings in Internet Explorer

Setting security settings too high may prevent Internet Explorer from displaying a Web site. Therefore, we recommend that you set these settings to a default level and test whether these settings are causing a conflict. To do this, follow these steps:

1. In Internet Explorer, click **Tools**, and then click **Internet Options**.
2. Click the **Security** tab.
3. Click **Internet**, and then click **Default Level**.
4. Click **Intranet**, and then click **Default Level**.
5. Click the **Advanced** tab, and then click **Restore Defaults**.
6. Close Internet Explorer, reopen Internet Explorer, and then try to browse the Internet.

If this does not resolve the problem, you can return restore Internet Explorer to its previous security level.

Part 3: Disable third-party browser extensions

Browser extensions are used by some Web sites to provide additional content, such as Flash movies. It is possible that one of these extensions is damaged or is conflicting with Internet Explorer. To disable all third-party browser extensions, follow these steps:

1. Click **Start**, right-click **Internet Explorer**, and then click **Internet Properties**.
2. Click the **Advanced** tab.
3. Click to clear the Enable third-party browser extensions (requires restart) check box.

4. Click **Apply**, and then click **OK**.
5. Start Internet Explorer, and then try to browse the Internet.

Part 4: Register Internet Explorer DLLs

Some core Internet Explorer files may have been unregistered. This means that a required file may no longer have its location identified in the registry. Reregistering Internet Explorer DLLs replaces any missing links in the registry for these files.

1. Click **Start**, click **Run**, and then type each of the following commands. Press **ENTER** after you type each command.
regsvr32 urlmon.dll
regsvr32 shdocvw.dll
regsvr32 msjava.dll
regsvr32 browseui.dll
regsvr32 mshtml.dll
regsvr32 jscript.dll
regsvr32 vbscript.dll
2. Test to see if the problem is resolved. If it is not resolved, go to step 3.
3. Click **Start**, click **Run**, and then type each of the following commands. Press **ENTER** after you type each command.
regsvr32 urlmon.dll
regsvr32 /n /i wininet.dll
regsvr32 wintrust.dll
regsvr32 initpki.dll
regsvr32 dssenh.dll
regsvr32 rsaenh.dll
regsvr32 gpkcsp.dll
regsvr32 sccbase.dll
regsvr32 slbcsp.dll
regsvr32 cryptdlg.dll
regsvr32 softpub.dll

Registering these DLL files should resolve the problem if it is being caused by unregistered DLL files. However, the following DLL files may also cause the problem if they are unregistered.

actxprxy.dll
mobsync.dll
asctrls.ocx
msapsspc.dll
cdfview.dll
mshta.exe
comcat.dll
mshtml.dll
comctl32.dll
msident.dll
corpol.dll

msieftp.dll
cryptdlg.dll
msnsspc.dll
digest.dll
msr2c.dll
dispex.dll
msrating.dll
dxtmsft.dll
msxml.dll
dxtrans.dll
occache.dll
hlink.dll
oleaut32.dll
iepeers.dll
plugin.ocx
iesetup.dll
pngfilt.dll
imgutil.dll
proctexe.ocx
inetcpl.cpl
scroobj.dll
initpki.dll
sendmail.dll
inseng.dll
setupwbv.dll
licmgr10.dll
tdc.ocx
mlang.dll
webcheck.dll

After you have registered all of these DLL files, try again to browse the Internet. If the problem is not resolved, and you have not tried the procedures in Section 2 or Section 3, try those first. If you have followed the procedures in those sections, go to Section 4.

Section 4: Damaged or missing core Windows files

Part 1: Run System File Checker

This problem may occur if some core system files have been removed or replaced. To resolve this problem run System File Checker (SFC) scan to identify missing system files. Then, replace these files.

Part 2: System Restore

If no other step that was mentioned earlier has resolved the issue and the problem has only started recently, a System Restore may be performed to restore the operating system to a previous working state.

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Advanced user information about the cause of this problem

The problem may occur for many reasons. These reasons include, but are not limited to, the following:

- Connectivity issues or network-related issues that include the following:
 - A conflict with the firewall or a firewall configuration issue
 - Issues with network drivers
 - Issues with winsock or TCP/IP
 - Incorrect entries in the Hosts file
- Third-party software or Internet connections settings issues that include the following:
 - Issues with the Startup files or other potential service conflicts
 - User Account corruption
 - Malicious software has been installed
- Internet Explorer configuration settings that include the following:
 - Internet Explorer is not optimized
 - Internet Explorer has conflicting or incorrect settings
 - Conflicts with third-party browser extensions
 - Problems with DLL files or use of unregistered DLL files
- Damaged or missing core Windows files that include the following:
 - System File Checker
 - System Restore

**Check your understanding**

1. What are the possible causes of a PCBD error?
2. How will you troubleshoot a PCBD issue?

Secure Sites Browsing Problem & Troubleshooting

At times user is not able to login the secured sites like msn.com, hotmail.com, yahoo.com, gmail.com, banking sites, online shopping sites etc. This generally happens as Internet explorer is not able to connect the secured sites using 128 bit cipher strength (For secured sites browser need 128 bit SSL encryption). It might be due to firewall, IE need to be optimized or cryptographic service has stopped working or any .dll file related to IE has got corrupted etc.

Step 1: Delete the temporary Internet files.

Step 2: Configure security, content, and advanced settings in Internet Explorer

1. Click **Trusted** sites in IE **Security** tab and then click **Default Level**. Add the SSL Secured (128-Bit) Web site to the Trusted sites zone. To do this, click **Sites**, type the URL of the site in the Add this Web site to the zone box, click **Add**, click **OK**, and then click **Apply**.
2. Clear the **Secure Sockets Layer (SSL) state** and **AutoComplete history**.
3. Verify that Internet Explorer is configured to use SSL 2.0 and SSL 3.0.

Step 3: Verify that the date and time settings on the computer are correct

Step 4: Verify that computer is using 128-bit encryption

To verify that your computer is using 128-bit encryption, follow these steps:

- a. Start Internet Explorer.
- b. On the **Help** menu, click **About Internet Explorer**.
- c. The level of encryption on your computer appears next to the words Cipher Strength. Verify that the Cipher Strength value appears as 128-bit.
- d. Click **OK**.

Step 5: Use System Restore to return the computer to a previous state

Step 6: Verify the configuration of third-party firewall or antivirus programs

Step 7: Use the System File Checker (Sfc.exe) tool to scan all Windows File Protection files

Step 8: Verify that the Microsoft Cryptographic Services service is started. This service helps to encrypt and decrypt the secured data while surfing secured websites with the help of certificates. To do so, at the command prompt, type **net start cryptsvc**, and then press **ENTER**.

Step 9: Re-register .dll files

At the command prompt, type the following:

Note: Remove the quotes while typing at the command prompt

1. Type "regsvr32 softpub.dll"
2. Type "regsvr32 wintrust.dll"
3. Type "regsvr32 initpki.dll"
4. Type "regsvr32 dssenh.dll"
5. Type "regsvr32 rsaenh.dll"
6. Type "regsvr32 gpkcsp.dll"
7. Type "regsvr32 sccbase.dll"
8. Type "regsvr32 slbcsp.dll"
9. Type "regsvr32 cryptdlg.dll"

Step 10: Create a new user profile

To check it log on as a different user and try to login to the secured website. If able to login to secured site than the user profile is corrupted & need to create a new user profile.

Login with admin rights and create a new user in the control panel under user accounts.



Check your understanding

1. How will you troubleshoot a Secure Site browsing issue?

Internet Explorer General Troubleshooting

The following general troubleshooting steps can be performed when there is no clear path to resolution of the browsing problem.

1. Delete temp files, history and cookies from the computer.
2. Disable third party browser extensions.
3. Check for viruses and spywares
4. Perform clean boot
5. Try testing an alternate user profile.
6. Perform SFC /Scannow
7. Re-register the internet explorer files
8. Download and install the latest script engine
9. Perform repair installation of Windows XP.

Improve browsing performance in Internet Explorer

Perform the following steps to optimize the browsing performance in Internet Explorer:

1. Click Internet Options on the Tools menu in Internet Explorer.
2. On the Advanced tab, click to clear one or more check boxes in the Multimedia area:
3. Show Pictures (prevents pictures from appearing automatically)
4. Play Sounds (prevents sounds from being played automatically)
5. Play Videos (prevents videos from being played automatically)
6. Play Animations (prevents animations from being played automatically)
7. Click Apply.
8. Disable the AutoComplete feature for forms and passwords
9. On the Tools menu, click Internet Options.
10. Click the Content tab, and then click AutoComplete.
11. Click to clear the Forms and User names and passwords on forms check boxes, click OK, and then click OK.
12. Click the Security tab, and then click Custom Level.
13. Click Disable for one or more of the items in the Active Content areas

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14. ActiveX Controls and Plug-ins (prevents Internet Explorer from automatically using items that show active content)
15. Java (prevents Internet Explorer from viewing Java programs automatically)
16. Scripting

Note: *If you disable ActiveX, Java, and scripting, you may not be able to view Web sites that use these features.*

Click OK, and then click OK



Check your understanding

1. What are the general steps to troubleshoot an Internet Explorer issue?
2. Mention the steps to improve browsing performance in Internet Explorer.

Day 5: Network Connectivity & Troubleshooting

Module Objectives:

By the end of this module, you will understand:

- Hardware & Software used to network computers
- TCP/IP configuration.
- The use of TCP/IP troubleshooting tools
- Different type of Internet Connections
- Setting up a new Internet Connection
- Internet Connection Sharing
- Network Bridge
- Troubleshooting network connectivity
- Security permissions and troubleshooting
- File & Printer sharing and troubleshooting

Networking Basics

To create a home network, you need the following:

- **Computers:** It is also known as Hosts on a network.
- **Network Adaptors** (Network Interface Cards or NIC): This device sends data signals on the network and a unique hardware address, called a MAC (Media Access Control) address.
- **Common Protocols:** Network Protocols define the methods of communication, which provides an addressing scheme, definition of data structure, control messages, and other network functionality.
- **Connectivity Devices**
 - **Hubs and switches** connect hosts in the same network, but there are limits on how many computers can be connected together as a single network.
 - **Routers** divide networks and make decisions on the best path for sending data.
- **Modems:** These are devices that can take a network signal and place it on a non-standard medium, such as a phone line or coaxial cable.

Understanding TCP/IP

Transmission Control Protocol (TCP) and Internet Protocol (IP) are two of the most commonly used protocols in the TCP/IP protocol stack. A group of protocols working together is called a protocol stack.

Windows XP installs TCP/IP automatically when it detects a network adapter. The following are the options that are necessary for a computer to function in a TCP/IP environment:

- IP address (required): The unique address used by the computer to communicate.
- Subnet mask (required): This is a number that identifies what part of the IP Address identifies the Host, and what part identifies the network
- Default gateway (required): This is the router that's used when sending data to a destination IP Address that is not on your local network
- Domain Name System (DNS) configuration (optional): This is the name server used by the connection to resolve friendly names
- Windows Internet Naming Service (WINS) configuration (optional): Windows operating systems that are not part of a domain, the Client and Server network services use NetBIOS to establish connections.



Check your understanding

1. Name the components that you might require to create a home network?
2. What do you understand by a protocol stack? Name any one of them.
3. What are the pre-requisites for a computer to run in TCP/IP environment?

IP Addressing

An IP address consists of a 32-bit binary number that is logically divided into four groupings of 8 bits each. Each 8-bit grouping is called an octet or a byte.

IP addresses are normally presented in dotted decimal notation. With dotted decimal notation, each octet in an IP address is represented as a decimal number from 0 to 255, and each of these numbers is separated by a period. An example of an IP address is 192.168.0.1, which is represented in binary notation as 11000000 10101000 00000000 00000001.

An IP address contains two pieces of information: the network ID for the network segment to which the computer is connected and the host ID for that computer. The network ID identifies the network on which a host is found. The host ID identifies the host within that network. All devices on the same network subnet must be assigned an IP address that has the same network ID but a unique host ID.

IP Address Classes IP addresses are divided into the following classes, with each class having different network ID and host ID properties.

Class	1st Octate Range	Assignable to Hosts?	Network ID	Host ID	Number of Networks	Number of Host IDs per Network
A	1-126	Yes	w	x.y.z	126	16,777,214
B	128-191	Yes	w.x	y.z	16,382	65,534
C	192-223	Yes	w.x.y	z	2,097,150	254
D	224-239	No	NA	NA	NA	NA
E	240-255	No	NA	NA	NA	NA
Loopback	127	No	NA	NA	NA	NA

Automatic Private IP Addressing (APIPA) = 169.254.x.y

If Windows is set to automatically obtain an IP address and it is not assigned a network address by a DHCP server on the network, it assigns itself an IP address in the 169.254.x.y range (where x and y are numbers between 1 and 254, inclusive) and a subnet mask of 255.255.0.0.

These addresses are in one of several private address ranges, meaning that routers do not pass the traffic for these addresses between networks. As a result they cannot be used to connect to the Internet. They can however be used to communicate between computers within a home network, and should work for basic configurations.

Such addresses usually indicate a problem when a home network uses a router or ICS to share an Internet connection. In this configuration, the router or ICS machine typically assigns IP addresses to each machine, acting as a DHCP server for the network. If you

encounter such a configuration, check the status of the router or ICS machine as it may not be assigning addresses properly.

Subnet Masks

The subnet mask tells a TCP/IP host how to interpret IP addresses by defining what portion of the IP address is network ID and what portion is host ID. A 255 in the subnet mask indicates that the corresponding octet in an IP address is to be interpreted as part of the network number. A 0 in the subnet mask indicates that the corresponding octet in an IP address is to be interpreted as part of the host ID.

The default subnet masks for Class A, B, and C network numbers are as follows:

- Class A 255.0.0.0
- Class B 255.255.0.0
- Class C 255.255.255.0

Default Gateway

The default gateway is the router to which the TCP/IP client will forward packets that are destined for computers on other networks. The default gateway then examines the destination IP address in the packets and ensures that the packet is routed to the final destination.

Because TCP/IP clients can communicate directly only within their network and they require the default gateway to communicate with other networks, the host's default gateway must reside on the same network as the host.

Domain Name System (DNS)

For TCP/ IP hosts to communicate with one another, they must have the IP address of the device they are connecting to. Therefore, computers must be able to resolve the host names into the IP address of the destination host before the computer can establish a connection. The process of resolving a name into an IP address is called name resolution. Domain Name System (DNS) is a network service that is designed to perform name resolution for TCP/IP clients.

WINS (Windows Internet Naming Service)

In addition to having host names, computers running Windows also have a NetBIOS name. NetBIOS names are based on a protocol called Network Basic Input/Output System (NetBIOS), which assists in the establishment of connections over the network. In a NetBIOS environment, each computer is assigned a NetBIOS name of up to 16 characters in length. The first 15 characters are the actual name of the computer, and the sixteenth character is a reserved character used to represent different resources or services offered

by the computer. In Windows operating systems that are not part of a domain, the Client and Server network services use NetBIOS to establish connections.



Check your understanding

1. Explain the following terms:
 - IP address
 - APIPA
 - Subnet masks
 - Default Gateway
 - Domain Name System
 - WINS
2. What are different IP address classes?
3. Describe the structure of an IP address?

Using TCP/IP Troubleshooting Tools

The basic tools for troubleshooting TCP/IP are:

- Ping
- IPConfig
- Tracert
- Pathping

Using Ping

Ping command is used to check for connectivity between devices on a network. In order to check, where the communication and connection fail, you should use the Ping command in the following order.

- Ping the loopback address first,
- Local computer on the same network
- DNS or DHCP server on the local subnet
- Default Gateway
- Remote computer on another network
- Resource on the Internet

Pinging the Loopback Address The loopback address (127.0.0.1) is the first detail you should check when a TCP/IP problem appears. If this check fails, the TCP/IP configuration for the local machine is not correct. To ping the loopback address, follow these steps, run 'ping 127.0.0.1' from command prompt.

```

Command Prompt
Microsoft Windows XP [Version 5.1.2600.1
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Walter>ping 127.0.0.1

Pinging 127.0.0.1 with 32 bytes of data:

Reply from 127.0.0.1: bytes=32 time<1ms TTL=128
Reply from 127.0.0.1: bytes=32 time<1ms TTL=128
Reply from 127.0.0.1: bytes=32 time<1ms TTL=128
Reply from 127.0.0.1: bytes=32 time<1ms TTL=128

Ping statistics for 127.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Documents and Settings\Walter>

```

Additional Ping options include the following:

Ping Option	Explanation
-t	Ping the specified host until stopped. To see statistics and continue - type Control-Break; To stop - type Control-C
-a	Resolve addresses to hostnames
-n count	Number of echo requests to send
-l size	Send buffer size
-f	Set Don't Fragment flag in packet
-i TTL	Time To Live
-v TOS	Type Of Service.
-r count	Record route for count hops
-s count	Timestamp for count hops
-j host-list	Loose source route along host-list
-k host-list	Strict source route along host-list
-w timeout	Timeout in milliseconds to wait for each reply

Using IPConfig

This command is used to check the current TCP/IP configuration information of a computer. To use Ipconfig, run Ipconfig to view basic TCP/IP parameters, Ipconfig /all to view the complete TCP/IP configuration.

```

C:\>ipconfig /all

Windows IP Configuration

    Host Name . . . . . : COMPUTER1
    Primary Dns Suffix . . . . . :
    Node Type . . . . . : Mixed
    IP Routing Enabled. . . . . : No
    WINS Proxy Enabled. . . . . : No

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix . :
    Description . . . . . : Intel(R) PRO/1000 CT Network Connect
    ion
    Physical Address. . . . . : 00-07-E9-45-C4-2D
    Dhcp Enabled. . . . . : No
    IP Address. . . . . : 192.168.1.2
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1
    DNS Servers . . . . . : 69.1.30.43
                           69.1.30.42

C:\>_

```

Additional IPConfig options include the following:

IPConfig Options	Explanation
/release	Releases DHCP-supplied configuration information
/renew	Renews DHCP-supplied configuration information
/flushdns	Purges the local DNS cache (the area of memory that stores recently resolved names so that the client does not have to contact the DNS server each time the client needs to resolve a name)
/registerdns	Renews DHCP-supplied configuration information and registers the DNS name to IP address information with DNS
/displaydns	Displays the contents of the local DNS cache
/setclassid	Provides for the configuration of DHCP user classes, which can control the way that IP addresses are assigned

Using Tracert

The Tracert command-line utility can help you figure out exactly where along the route the breakdown happened. Sometimes the connection breaks down at the gateway on the local network and sometimes at a router on an external network.

To use Tracert, run Tracert followed by the IP address of the remote computer. The resulting report shows where the packets were lost.


```

MS-DOS Prompt
7 x 12
Tracing route to yourdomain.com [64.81.204.225]
over a maximum of 30 hops:

 1  165 ms  164 ms  165 ms  209.215.215.8
 2  180 ms  159 ms  184 ms  209.215.215.61
 3  166 ms  154 ms  165 ms  205.152.45.248
 4  406 ms  223 ms  226 ms  Serial2-6.GW8.ATL1.ALTER.NET [157.130.69.205]
 5  242 ms  192 ms  165 ms  151.at-2-1-0.XR2.ATL1.ALTER.NET [152.63.82.162]
 6  160 ms  175 ms  155 ms  294.at-1-1-0.TL2.ATL1.ALTER.NET [146.188.232.106]
 7  297 ms  174 ms  183 ms  109.at-5-0-0.TR2.NYC9.ALTER.NET [146.188.141.78]
 8  337 ms  203 ms  194 ms  186.ATM7-0.XR2.NYC4.ALTER.NET [152.63.21.145]
 9  182 ms  174 ms  174 ms  188.ATM7-0.GW7.NYC4.ALTER.NET [152.63.25.109]
10  308 ms  183 ms  174 ms  internap-gw.customer.alter.net [157.130.50.86]
11  179 ms  193 ms  184 ms  border22.ge3-0-bbnet2.nyc.pnap.net [209.191.128.154]
12  200 ms  193 ms  202 ms  spk-2-nyc.dsl-isp.net [209.191.132.36]
13  315 ms  183 ms  174 ms  yourdomain.com [64.81.204.225]

Trace complete.
C:\WINDOWS>

```

```

C:\WINDOWS\system32\cmd.exe - tracert feeds.feedburner.com
C:\>tracert feeds.feedburner.com

Tracing route to feeds.feedburner.com [66.150.96.119]
over a maximum of 30 hops:

 1  34 ns  34 ns  35 ns  1.252.141.61.broad.sz.gd
[61.141.252.1]
 2  35 ns  33 ns  34 ns  121.34.244.225
 3  34 ns  34 ns  34 ns  59.40.49.110
 4  35 ns  39 ns  34 ns  58.60.24.49
 5  37 ns  37 ns  37 ns  202.97.43.145
 6  37 ns  37 ns  37 ns  202.97.33.110
 7  *      *      *      Request timed out.
 8  *      *      *      Request timed out.
 9  *      *      *      Request timed out.
10  *      *      *      Request timed out.
11  *      *      *      Request timed out.
12  *      *      *      Request timed out.

```

Using Pathping

The Ping command is used to test communication between one computer and another; The Pathping command provides information about data loss between the source and the destination, allowing you to determine which particular router or subnet might be having network problems. To use the Pathping command, at the command prompt, type pathping followed by the target name or IP address.

```

C:\WINNT\System32\cmd.exe

C:\>pathping kalicore.org

Tracing route to kalicore.org [66.150.5.36]
over a maximum of 30 hops:
 0  dardhvader [192.168.1.100]
 1  10.185.0.1
 2  12.244.118.97
 3  12.244.69.133
 4  12.244.73.38
 5  gbr2-p50.sffca.ip.att.net [12.123.13.62]
 6  thr2-p012701.sffca.ip.att.net [12.122.11.85]
 7  12.122.12.114
 8  gbr2-p10.st6wa.ip.att.net [12.122.5.166]
 9  gar1-p370.st6wa.ip.att.net [12.123.44.62]
10  ...
Computing statistics for 250 seconds...
Hop  RTT      Source to Here   This Node/Link   Address
 0                               Lost/Sent = Pct  Lost/Sent = Pct
 0                               0/ 100 = 0%      0/ 100 = 0%      dardhvader [192.168.1.100]
 1  154ms      0/ 100 = 0%      0/ 100 = 0%      10.185.0.1
 2  150ms      1/ 100 = 1%      1/ 100 = 1%      12.244.118.97
 3  160ms      2/ 100 = 2%      2/ 100 = 2%      12.244.69.133
 4  146ms      0/ 100 = 0%      0/ 100 = 0%      12.244.73.38
 5  143ms      0/ 100 = 0%      0/ 100 = 0%      gbr2-p50.sffca.ip.att.net [12.123.13.62]
 6  136ms      1/ 100 = 1%      1/ 100 = 1%      thr2-p012701.sffca.ip.att.net [12.122.11.85]
 7  175ms      0/ 100 = 0%      0/ 100 = 0%      12.122.12.114
 8  170ms      0/ 100 = 0%      0/ 100 = 0%      gbr2-p10.st6wa.ip.att.net [12.122.5.166]
 9  164ms      1/ 100 = 1%      0/ 100 = 0%      gar1-p370.st6wa.ip.att.net [12.123.44.62]
10  ---       100/ 100 =100%   99/ 100 = 99%    0/ 100 = 0%      dardhvader [0.0.0.0]

Trace complete.
C:\>

```



Check your understanding

1. Why and how ping command used for?
2. Explain the use of pathping, ipconfig and tracert commands.

Narrowband v/s Broadband

Features	Narrowband	Broadband
Service area	National, regional, or local	National, regional, or local
Connection	Dial-up	DSL, cable, satellite, wireless
Speed	Less Than 256 Mbps	256 and above
Features	email, personal web pages, instant messaging, local dial-up number	Same
Equipment	pc, phone line, modem	pc, phone line, cable connection, satellite dish, broadband modem
Security	None	User must check to see if firewall is installed
Time online	Unlimited or set	Always on

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	amount number of minutes	
Cost	Flat rate but additional fees if time allotment exceeded	Flat rate for unlimited access or service tiers

Different Ways to Connect to the Internet

Dial-Up connections: Using a modem connected to your PC, users connect to the Internet when the computer dials a phone number (which is provided by your ISP) and connects to the network. Dial-up is an analog connection because data is sent over an analog, public telephone network. The modem converts received analog data to digital and vice versa.

ISDN – Integrated services digital network (ISDN) is an international communications standard for sending voice, video, and data over digital telephone lines or normal telephone wires.

DSL - DSL is also called an always on connection because it uses existing 2-wire copper telephone line connected to the premise and will not tie up your phone as a dial-up connection does. There is no need to dial-in to your ISP as DSL is always on. The two main categories of DSL for home subscribers are called ADSL and SDSL

ADSL - ADSL is the most commonly deployed types of DSL in North America. Short for asymmetric digital subscriber line ADSL supports data rates of from 1.5 to 9 Mbps when receiving data (known as the downstream rate) and from 16 to 640 Kbps when sending data (known as the upstream rate). ADSL requires a special ADSL modem.

SDSL - SDSL is still more common in Europe. Short for symmetric digital subscriber line, a technology that allows more data to be sent over existing copper telephone lines (POTS). SDSL supports data rates up to 3 Mbps. SDSL works by sending digital pulses in the high-frequency area of telephone wires and can not operate simultaneously with voice connections over the same wires. SDSL requires a special SDSL modem. SDSL is called symmetric because it supports the same data rates for upstream and downstream traffic.

Cable - Through the use of a cable modem you can have a broadband Internet connection that is designed to operate over cable TV lines. Cable Internet works by using TV channel space for data transmission, with certain channels used for downstream transmission, and other channels for upstream transmission. Because the coaxial cable used by cable TV provides much greater bandwidth than telephone lines, a cable modem can be used to achieve extremely fast access.

Tier-Carrier - Consists of many tiers of speed.

- **T1 - Tier1-** T-1 lines are a popular leased line option for businesses connecting to the Internet and for Internet Service Providers (ISPs) connecting to the Internet backbone. It is a dedicated phone connection supporting data rates of 1.544Mbps. A T-1 line actually consists of 24 individual channels, each of which supports 64Kbits per second. Each 64Kbit/second channel can be configured to carry voice or data traffic. Most telephone companies allow you to buy just one or some of these individual channels. This is known as as fractional T-1 access.
- **T3 - Tier3-** T-3 lines are dedicated phone connections supporting data rates of about 43 to 45 Mbps. It too is a popular leased line option. A T-3 line actually consists of 672 individual channels, each of which supports 64 Kbps. T-3 lines are used mainly by Internet Service Providers (ISPs) connecting to the Internet backbone and for the backbone itself.
- **T2,T4,T5** - Tier 2,4, and 5 are not used as much as above but have speeds of 6Mbit(T2), 274Mbit(T4), and 400Mbit(T5)

Optical Cable - Short for Optical Carrier, level 3 it is used to specify the speed of fiber optic networks conforming to the SONET standard. OC3 is typically used as a fiber optic backbone for large networks with large voice, data, video, and traffic needs.

Satellite - Internet over Satellite (IoS) allows a user to access the Internet via a satellite that orbits the earth. A satellite is placed at a static point above the earth's surface, in a fixed position. Because of the enormous distances signals must travel from the earth up to the satellite and back again, IoS is slightly slower than high-speed terrestrial connections over copper or fiber optic cables.



Check your understanding

1. What do you understand by narrowband and broadband connections? Explain the basic differences between them.
2. What are different ways to connect to Internet?

Setting up Internet Connection

You should have the following items before beginning:

- A computer with Windows XP , in a good working order
- A modem, connected to a working telephone jack. Properly installed in your system and configured in windows.
- The Paperwork that was supplied when you signed up with the Library, Including your user name and password.
- You may require your windows CD-ROM. (If your system shipped with one)

To set up an Internet connection, open the Control Panel > select Network and Internet Connections > then, select the Network Connections control panel icon > In the Preview Pane on the left side of the Network Connections window > select Create a New Connection. The New Connection Wizard will appear. Once you click Next, you will see four options listed:

- Connect to the Internet: Connect to the Web/Internet using a typical high speed or dial up connection.
- Connect to the Network at my Workplace: Connect to a business network via dial-up or VPN (another type of dial-up connection).
- Set up a Home or Small Office Network: Connect to an existing home or small office network or set up a new connection.
- Set up an Advanced Connection: Connect to another computer via serial, parallel, or infrared port. You may also have a computer connect to your computer.

Configuring a Dial up Connection

To configure the dial-up connection, right-click the icon and choose Properties. Or to setup a new dialup connection, follow the below mentioned steps:

1. Click **Start**, click **Control Panel**, and then click **Network and Internet Connections**.
2. Click **Create a connection to the network at your office**.
3. In the Location Information dialog box, enter the appropriate information. Click **OK**, and then click **OK** to close the Phone and Modem Options dialog box and start the New Connection wizard.
4. In the New Connection Wizard, click **Dial-up connection**, and then click **Next**.
5. Type a name for the network to which you are connecting (such as "My Office Network"), and then click **Next**.
6. Type the phone number for the network to which you are connecting, including, if necessary, the area code and "1" prefix.
7. Specify whether you want this connection to be available for anyone's use, meaning for any user on this computer, or for your use only, meaning only for the user who is now logged on.
8. Specify whether you want a shortcut to the connection on your desktop.
9. Click **Finish**.

Auto Dial Settings

Auto Dial causes a dial-up or DSL connection to be made when an application on the computer attempts to connect to the Internet. This is a setting in the Internet Options interface.

Enabling this setting to always dial the default connection relies on a default connection being set. Other failures with auto dial can happen when a connection is damaged, or when the user name or password is not correct. Start by testing the connection from the Network

Connections folder. Creating a new test connection is also a recommended troubleshooting method if the Internet Options setting looks correct, but auto dial is still not working as expected.



Check your understanding

1. Describe the steps to set up an Internet Connection?
2. How will you configure a dial up connection?
3. What are the benefits of auto dial settings?

Internet Connection Sharing (ICS)

ICS has several related functions that allow the home or small office user to share their one Internet connection with all other users on their network. First, Network Address Translation passes and translates network data from the private network to the public Internet. Then there is the DHCP allocator, to handle IP addresses to the clients on the network. Next, there is the DNS Proxy and Resolver, which is used to resolve name queries for the internal network.

How to use Internet Connection Sharing

To use Internet Connection Sharing to share your Internet connection, the host computer must have one network adapter that is configured to connect to the internal network, and one network adapter or modem that is configured to connect to the Internet.

On the host computer

1. Log on to the host computer as Administrator or as Owner.
2. Click **Start**, and then click **Control Panel**.
3. Click **Network and Internet Connections**.
4. Click **Network Connections**.
5. Right-click the connection that you use to connect to the Internet. For example, if you connect to the Internet by using a modem, right-click the connection that you want under Dial-up.
6. Click **Properties**.
7. Click the **Advanced** tab.
8. Under **Internet Connection Sharing**, select the **Allow other network users to connect through this computer's Internet connection** check box.
9. If you are sharing a dial-up Internet connection, select the Establish a dial-up connection whenever a computer on my network attempts to access the Internet check box if you want to permit your computer to automatically connect to the Internet.
10. Click **OK**. You receive the following message:

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When Internet Connection Sharing is enabled, your LAN adapter will be set to use IP address 192.168.0.1. Your computer may lose connectivity with other computers on your network. If these other computers have static IP addresses, it is a good idea to set them to obtain their IP addresses automatically. Are you sure you want to enable Internet Connection Sharing?

11. Click Yes

On the client computer

To connect to the Internet by using the shared connection, you must confirm the LAN adapter IP configuration, and then configure the client computer. To confirm the LAN adapter IP configuration, follow these steps:

1. Log on to the client computer as Administrator or as Owner.
2. Click **Start**, and then click **Control Panel**.
3. Click **Network and Internet Connections**.
4. Click **Network Connections**.
5. Right-click Local Area Connection, and then click **Properties**.
6. Click the **General** tab, click **Internet Protocol (TCP/IP)** in the This connection uses the following items list, and then click **Properties**.
7. In the Internet Protocol (TCP/IP) Properties dialog box, click **Obtain an IP address automatically** (if it is not already selected), and then click **OK**.
IP Address 192.168.0.2
Subnet mask 255.255.255.0
Default gateway 192.168.0.1
8. In the Local Area Connection Properties dialog box, click **OK**.
9. Quit Control Panel.



Check your understanding

1. What is Internet Connection Sharing (ICS)?
2. How will you use ICS both on client and host computers?

Network Bridge

A network bridge transparently connects two local area networks (LANs) or two segments of the same LAN. These LANs can be alike or dissimilar.

Creating a Network Bridge

First select two network connections, then select Bridge Connections from the Advanced menu in the network connection properties page, or right-click one of the highlighted connections and choose Bridge Connections. A bridge icon is created.

Troubleshooting Network Connectivity

A network may not work because of any of the below reasons:

1. Network card not connected properly.
2. Bad network card drivers or software settings.
3. Firewall preventing computers from seeing each other.
4. Connection related issues.
5. Bad network hardware.

Troubleshoot basic connectivity issues

Step1: Verify the physical connection between computers

The back of each network adapter in a desktop computer has visible lights. These lights indicate a good connection. If you are using a network hub, or a switch to connect the computers, make sure that the network hub or the switch is turned on and that the lights are illuminated for each client connection. This indicates a good link

Step 2: Make sure that all computers have TCP/IP installed.

This step is important with older versions of Windows operating system.

Step 3: Make sure that the network configuration includes the IP addresses

Collect network configuration information from at least two computers on the network by using the adapter status. Then, make sure that the assigned IP addresses match the home-network configurations. To do this, follow these steps:

- a) Click **Start**, click **Run**, type **ncpa.cpl**, and then click **OK**.
- b) Locate and right-click the icon that represents this computer's connection to the home network, and then click **Status**.
- c) Click the **Support** tab, and then under **Connection** status, locate the IP addresses

If the assigned IP addresses do not match the topology that this article described in the "Home-network structures and their configurations" section, the computer that is assigning the addresses may not be available. This is likely to be true if 169.254.x.y addresses are in a configuration where you expect a different address range.

To change the configuration so that the addresses on the home network adapter for each computer are in the same range, determine which address is correct based on the network topology. To do this, check whether one computer receives an address in the range 192.168.0.x, and another receives an address in the range 169.254.x.y. When you isolate which computer has the incorrect address, troubleshoot the computer that has the incorrect address.

Step 4: Make sure that firewall features are not enabled on the home network adapters

Verify that the Internet Connection Firewall (ICF) or Windows Firewall (WF) feature is not enabled on the adapters that you use to connect the computers to the home network. If these features are enabled on these adapters, you cannot connect to shared resources on other computers in the network.

Step 5: Test connectivity between computers by using the "ping" command.

To use the ping command to test connectivity between two computers on the network, follow these steps:

- a) On one of the computers, click **Start**, click Run, type **cmd**, and then click **OK**.
- b) At the command prompt, type ping x.x.x.x (where x.x.x.x is the IP address of the other computer), and then press ENTER. If you get replies, go to step d.
- c) Test the local computer. To do this, type ping x.x.x.x (where x.x.x.x is the IP address of the local computer), and then press ENTER.
 - If you receive replies, the network adapter is installed correctly, and the TCP/IP protocol stack is likely to be working correctly.
 - If you do not receive replies, the network adapter may be installed incorrectly, or the TCP/IP protocol stack may be damaged. Troubleshoot the network adapter and the TCP/IP protocol stack
- d) When you can successfully ping the local computer, ping the other computer by using its IP address. To ping a computer by name, type ping computername (where computername is the name of the remote computer), and then press ENTER. To determine a computer's name, right-click My Computer on the desktop, click Properties, and then click the Computer Name tab. If you receive replies, you have connectivity and name resolution between the computers.

**Check your understanding**

1. What is a network bridge?
2. What are the possible reasons that network connectivity might not work?
3. What are the basic troubleshooting steps for a network connectivity issue?

Security Permissions

Security Permissions in Windows XP define the level of access that a user, a group, or a computer has to an object on the system.

Each type of object is controlled by an object manager. There is a different object manager for each type of object. Different object managers provide different level of security permissions. File Objects provide the following permission levels:

- Full Control
- Traverse Folder/Execute Files
- List Folder/Read Data
- Read Attributes
- Read Extended Attributes
- Create Files/Write Data
- Write Attributes
- Write Extended Attributes
- Delete
- Read Permissions
- Change Permissions
- Take Ownership

Simple File Sharing

In Home office network, Simple File Sharing is enabled by default. With Simple File Sharing, users can do the following:

- Share folders with everyone on the network
- Allow users who access the folder to view the files, edit the files, or both
- Make folders in his or her user profile private

Simple File Sharing does not permit users to do the following:

- Prevent specific users and groups from accessing folders
- Assign folder permissions to specific users and groups
- View the Security tab of a shared folder's Properties dialog box

To enable or disable Simple File Sharing or to see whether Simple File Sharing is in use, follow these steps:

1. Open **Control Panel**, select **Appearance And Themes**, and then select **Folder Options**.
2. Select the **View** tab, and under **Advanced** Settings, scroll down the list of choices to the last option.
3. Simple File Sharing is enabled if the **Use Simple File Sharing (Recommended)** check box is selected. To disable it, clear the check box. For the purposes of this section, verify that it is selected. Click **OK**.

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Check your understanding

1. What are different security permissions for file objects in Windows XP?
2. How will you enable/disable simple file sharing in Windows XP?

NTFS Permissions

NTFS permissions are an attribute of the folder or file for which they are configured. The six basic NTFS folder permissions are as follows:

- **Read** This permission allows a user to view the files and subfolders.
- **Write** This permission allows a user to create files and folders and write data to files and subfolders.
- **List Folder Contents** This permission allows a user to traverse the folder, execute files, and view files and subfolders.
- **Read And Execute** This permission allows a user to view the files and subfolders, traverse folders, and execute files.
- **Modify** This permission allows a user to view files and subfolders, traverse folders, execute files, create files, write data, create folders, and append data.
- **Full Control** This permission allows a user to have complete control over the folder, including deleting files and subfolders, taking ownership, and all other tasks.

Follow the below steps to set NTFS permissions:

1. In Windows Explorer, right-click a file, folder or volume and choose Properties from the context menu. The Properties dialog box appears.
2. Click the Security tab. Under Group or user names, select or add a group or user.
3. At the bottom, allow or deny one of the available permissions

Basic NTFS File and Folder Permissions

Permissions	Basic Full Control	Basic Modify	Basic Read & Execute	Basic List Folder Contents	Basic Read	Basic Write
Travers Folder/Execute File	x	x	x	x		
List Folder/ Read Data	x	x	x	x	x	
Read Attributes	x	x	x	x	x	
Read Extended Attributes	x	x	x	x	x	

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Permissions	Basic Full Control	Basic Modify	Basic Read & Execute	Basic List Folder Contents	Basic Read	Basic Write
Create Files/Write Data	x	x				x
Create Folders/Append Data	x	x				x
Write Attributes	x	x				x
Write Extended Attributes	x	x				x
Delete Subfolders and Files	x					
Delete	x	x				
Read Permissions	x	x	x	x	x	x
Change Permissions	x					
Take Ownership	x					
Synchronize	x	x	x	x	x	x

To see effective permissions, in the Advanced Security Settings dialog box, click the Effective Permissions tab and select a user or group. These are the results of the permissions directly assigned to the file or folder and permission inherited from parent folders.

File & Printer Sharing

File and printer sharing allows you to share the contents of selected folders and locally attached printers with other computers.

The following steps will guide you how to enable file and printer sharing in Windows XP:

1. Click **Start** and then click **Control Panel**
2. Click **Network and Internet Connections**
3. Click **Network Connections**
4. Right click the LAN Connection and then click **Properties**
5. Click **Advance** tab and then click **Settings**
6. Click **Exceptions** tab and ensure **File and Printer Sharing** is checked and then click **Ok**
7. On the **Network Connections** Window click **Tools** and then click **Folder Options**

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8. Click **View** tab scroll down under **Advance** Settings and check **Use Simple File Sharing (Recommended)**
9. Click **Ok**
10. Right click LAN Connection and then click **Properties**
11. Under **General** tab check **File and Printer Sharing for Microsoft Networks**
12. Right click the drive or folder you wish to share
13. Click **Sharing and Security**
14. Click **Ok**, for the first time Windows XP may run sharing wizard or you can do it manually
15. Wizard will automatically enable Internet Connection Firewall (ICF) to prevent other internet users from accessing shared files and folders.
16. It will prompt to use the wizard or to enable simple file sharing
17. Select **Simple File Sharing** and then click **Ok**



Check your understanding

1. What are different NTFS permissions in Windows XP?
2. How will you share a file or printer in Windows XP?

Troubleshooting File & Printer Sharing

- **Name Each Computer Correctly:** Ensure all computer names are unique and each follows the Microsoft naming recommendations. For example, consider avoiding spaces in computer names. The length of computer names, the case (upper and lower) of names and the use of special characters must also be considered.
- **Name Each Workgroup (or Domain) Correctly:** Whenever feasible, ensure all computers on a workgroup LAN have the same workgroup name. While sharing files between computers belonging to different workgroups is possible, it is also more difficult and error-prone. Similarly, in Windows domain networking ensure each computer is set to join the correct named domain.
- **Install TCP/IP on Each Computer:** It is strongly recommended to install TCP/IP on each computer and uninstall NetBEUI and IPX/SPX whenever possible.
- **Set up Correct IP Addressing and Sub-netting:** First, ensure the network mask is set to the same value on all computers. The network mask "255.255.255.0" is normally correct for home networks. Then, ensure each computer possesses a unique IP address. Both the network mask and other IP address settings are found in the TCP/IP network configuration.

- **Verify File and Printer Sharing for Microsoft Networks is Installed:** Ensure this service is installed by viewing the adapter's properties and verifying that a) this service appears in the list of installed items and b) the checkbox next to this service is checked in the 'on' position.
- **Temporarily or Permanently Disable Firewalls:** Consider temporarily disabling (or lowering the security level of) Norton, Zone Alarm and other firewalls as part of troubleshooting file sharing problems.
- **Verify Shares are Correctly Defined:** To share files on a Windows network, ultimately one or more network shares must be defined. Share names that end with a dollar sign (\$) will not appear in the list of shared folders when browsing the network (although these can still be accessed). Ensure shares have been defined on the network appropriately, following the Microsoft recommendations for share naming.



Check your understanding

1. Describe the basic steps to troubleshoot a file and printer sharing issue in Windows XP.

Group Policy

In a network domain environment, administrators use Group Policy to customize and configure computers on the network. In an environment where you have one stand-alone computer or several computers joined in a workgroup, you can still use Group Policy to customize your computer.

To open Group Policy- Click **Start> Run >Type gpedit.msc** and then click **OK**.

Whenever we configure group policy all the changes get stored in c:\windows\system32\group policy folder where computer configuration gets saved in machine folder and user related changes gets saved in User folder. If we deny read permission to group policy folder for any user, group policy would not hit the particular user.

There are specific DLL files responsible for applying different types of group policies. For security related group policies scecli.dll is required, Fdeploy.dll required for folder redirection, gptext.dll for any script, diskquota.dll for any policy related to disk quota, IEdkcs32.dll for internet explorer, appmanagement.dll for software deployment and userenv.dll for administrative templates.

To check what all policies are applied we can run the tool rsop.msc which queries WMI database in c:\windows\system32\wbem.

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Wireless Networking

It refers to any type of computer network that is wireless, and is commonly associated with a telecommunications network whose interconnections between nodes are implemented without the use of wires.

Wireless LANs can operate in two connection modes, Ad Hoc and Infrastructure. The Ad Hoc mode is a network of two or more devices through WLAN adapters. The Infrastructure mode is a network that includes one or more Access Points (AP). The Access Points can connect the Wireless network to a wired Ethernet network. In addition, this mode can provide Authentication and Encryption support. While setting up a wireless network, you need to follow these steps:

1. Select the wireless equipment (Router and Adaptor)
2. Connect wireless router
3. Configure wireless router
4. Connect computers and other devices

Wireless Network Standards

Wireless Standards	802.11b	802.11a	802.11g	802.11b+ (non-standard)	Dual Band
Data Rates	11Mbps	54Mbps	54Mbps	22,44Mbps	11,54Mbps
Average Actual Throughput	4-5 Mbps	27 Mbps	20-25 Mbps	6 Mbps	27 Mbps
Frequency	2.4GHz	5 GHz	2.4 Ghz	2.4 Ghz	2.4, 5 GHz
Available	83.5 Mhz	300 Mhz	83.5 Mhz	83.5 Mhz	83.5, 100MHz
Modulation Encoding	DSSS/CCK	CFDM	DSSS/OFDM	PBCC	DCCC/CCK,OFDM
Channels Mon-overlapping	11/3	12/8	11/3	11/3	11/3, 12/8



Check your understanding

1. What is Group Policy and how will you enable it in Windows XP?
2. What do you understand by wireless network?
3. Describe different wireless standards.

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Wireless Equipment

Wireless router: Converts the signals coming across your Internet connection into a wireless broadcast, sort of like a cordless phone base station.

Wireless network adaptor: Connects the computer to a wireless router.

Connect wireless router

To connect your router to your modem, follow these steps:

1. Connect network cable connected on the modem to the port labeled Internet, WAN, or WLAN on the back of your router.
2. After a minute, switch on the power of the router. The Internet, WAN or WLAN light on the router should light up, indicating that it has successfully connected to your modem.

Configure Wireless Router

To configure a wireless router you need to follow these steps. Here we are covering the screenshots of Linksys Wireless Router.

1. Make sure that you can go online by connecting your computer to the modem (Without connecting WRT54G router in the network).
2. Connect your computer to the one of the LAN port of WRT54G.
3. Connect the modem to the WAN Port of WRT54G and all devices should be powered on.
4. Open Internet Explorer and type the default IP Address of the Router. The default IP address of WRT54G is 192.168.1.1 and then press enter.
5. After Entering the default user name and Password you will log on to the Router Setup page.
6. The default addresses, user names, and passwords for some common router manufacturers.

Router	Address	Username	Password
3Com	http://192.168.1.1	admin	Admin
D-Link	http://192.168.0.1	admin	(leave blank)
Linksys	http://192.168.1.1	admin	Admin
Netgear	http://192.168.0.1	admin	password

7. On setup page select PPPOE instead of **Automatic Configuration DHCP**
8. Enter the user name and Password provided by your Internet Service Provider and click **save**.
9. Click the status bar and click **connect** button.

Connect Computers

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To connect your computer to your wireless network, follow these steps:

1. Right-click the wireless network icon in the lower right corner of your screen, and then click **View Available Wireless Networks**.
2. The Wireless Network Connection window appears and displays your wireless network listed with the SSID you chose. If you don't see your network, click Refresh network list in the upper left corner. Click your network, and then click **Connect** in the lower right corner.
3. Windows XP prompts you to enter a key. Type the encryption key that you wrote down earlier in both the Network key and Confirm network key boxes, and then click **Connect**.
4. Windows XP will show its progress as it connects to your network. If the Wireless Network Connection window continues to show Acquiring Network Address, you may have mistyped the encryption key.



Check your understanding

1. Describe the below wireless equipments:
 - Wireless router
 - Wireless network adapter
2. How will you set up a wireless connection?

Troubleshooting Wireless Network

Before troubleshooting check the following

- What is the symptom? If it is an error message, note the full error message.
- What wireless card is used? Note the manufacturer and the model number.
- What is the driver version for the card? Look in Device Manager or click Configure in the Properties dialog box of the wireless connection.
- What access point is in use? Note the manufacturer and the model number.
- Are the wireless settings configured by using Windows or by using a third-party program? If a third-party program is used, what is the program and its version number?
- Is the Wireless Zero Configuration service running?

Problem: Unable to establish a wireless connection to your network

Symptoms:

1. Red x on the wireless network icon.
2. PopUp: Unable to connect to wireless network

3. PopUp: Unable to connect to preferred wireless network.
4. Mouse-over the system tray wireless network icon displays "Not connected".
5. ipconfig/all displays "Media state: Media disconnected".
6. Clicking on "Repair" and getting the message: "Windows could not finish repairing the problem because the following action cannot be completed: Connecting to the wireless network. For assistance, contact the person who manages your network."

Most likely cause(s):

Incorrect wireless network key settings - one or more of the following settings are incorrect:

1. Network Authentication.
2. Data encryption.
3. Network key.

Other possible causes:

1. Firewall - improperly configured (not allowing communication between the devices).
2. Router - improperly configured (not allowing communication between the devices).
3. Cable modem or DSL modem - improperly connected to the Router (wrong port). The correct port is commonly named **Internet** or **Online**, and usually does not have a number, i.e 1, 2, 3, or 4. So, if the ethernet cable from the Cable modem or DSL modem is plugged into a port on the back of the router with a number, it is in the wrong port.

**Check your understanding**

1. What are the basic parameters to check before troubleshooting a wireless network?
2. What are the possible symptoms that you might observe when experiencing a wireless connectivity issue?
3. What are the possible causes of a wireless connectivity issue?

Wireless Networking Terminologies

Wireless Equivalency Privacy: WEP is a symmetric algorithm that uses the same key for cipher and decipher. The WEP algorithm defines the use of 40 to 104 bit secret keys for authentication and encryption. However, some hardware also supports 128 bit secret keys.

Zero Configuration Details: Windows XP provides two features that are useful in a Wireless environment. Windows XP provides secure access to the network through IEEE 802.1X. This enables interoperable user identification, centralized authentication, and dynamic key management. In addition, the secure access builds on existing standards, especially EAP and Radius and secures both wired and wireless LAN access.

Network Location Awareness (NLA): Network Location Awareness (NLA) is a new service in Windows XP. It is included with Windows XP Home Edition and Professional. NLA collects and stores network configuration and location information, and notifies applications when this information changes. It enables applications written to the Windows Sockets 2 specifications to identify the logical network or networks to which the computer is attached. NLA enables applications written to the Windows Sockets 2 specifications to identify the logical network or networks to which the computer is attached. NLA is also used by computers or devices that have more than one configuration available and want to select the optimal configuration for each situation.

IEEE 802.1X Protocol: IEEE 802.1X is a draft standard for port-based network access control. IEEE 802.1X provides authenticated network access to IEEE 802 media, such as Ethernet, Token Ring, and 802.11 wireless networks. Port-based network access control uses the physical characteristics of the switched LAN infrastructures to authenticate devices attached to a LAN port. In addition, port-based network access control prevents access to the port where the authentication process fails. IEEE 802.1X protocol allows a wireless access point to securely identify traffic of particular clients. This is done by passing an authentication key to the client and to the wireless access point as part of the authentication procedure.

Shared Key Authentication: Shared key authentication verifies that an authentication-initiating station has knowledge of a shared secret. This is similar to pre-shared key authentication for Internet Protocol security (IPSec). As the shared key authentication secret must be manually distributed and typed, this method of authentication does not scale appropriately in large infrastructure network mode.

Wired Equivalent Privacy (WEP): Due to the nature of wireless LAN networks, securing physical access to the network is difficult. Unlike a wired network where a physical connection is required, anyone within range of a wireless AP can conceivably send and receive frames as well as listen for other frames being sent, making eavesdropping and remote sniffing of wireless LAN. WEP encryption uses the RC4 symmetric stream cipher with 40-bit and 104-bit encryption keys. 104-bit encryption keys are not standard, however, many wireless AP vendors support them.

Wi-Fi Protected Access (WPA): Wi-Fi Protected Access (WPA and WPA2) was developed by Wi-Fi Alliance to secure wireless computer networks. This protocol was created in response to several serious weaknesses researchers had found in the previous system, WEP (Wired Equivalent Privacy).

WPA-PSK is extra-strong encryption where encryption keys are automatically changed (called rekeying) and authenticated between devices after a specified period of time, or after a specified number of packets has been transmitted. This is called the rekey interval. WPA-PSK is far superior to WEP and provides stronger protection for the home/SOHO user for two reasons. The process used to generate the encryption key is very rigorous and the rekeying (or key changing) is done very quickly. This stops even the most determined hacker from gathering enough data to break the encryption.



Check your understanding

1. Explain the following wireless network terminologies:
 - Wireless Equivalency Privacy
 - Zero Configuration Details
 - Network Location Awareness
 - IEEE 802.1X Protocol
 - Shared Key Authentication
 - Wired Equivalent Privacy
 - Wi-Fi Protected Access
 - WPA-PSK

Week 3: Windows Vista

Week Objectives:

By the end of this week, you will learn:

Day-1

Windows Vista Overview

- Windows Vista features overview
- Different Windows Vista versions
- Minimum system requirements of Vista
- Windows Vista Clean Installation
- Windows Vista Upgrade Advisor
- Upgrade from Windows XP to Windows Vista
- Windows Vista Setup Logs

Day-2

Windows Vista Parallel Install, Repair Install & Troubleshooting

- Windows Vista Parallel Installation process.
- Windows Vista Repair Installation process.
- Windows Vista Troubleshooting Installation issues
- Windows Vista Boot process
- Windows Vista Boot related issues
- Windows Vista Service packs
- Windows Vista diagnostics

Day-3

Vista Recovery and User Accounts

- Windows Vista Recovery Environment
- Advanced boot Options
- User Accounts
- User Account Control

Day-4

Windows Vista Utilities and Troubleshooting

- Bit Locker
- Windows Defender
- Aero Feature
- Parental Controls

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- Easy Transfer
- Internet Explorer 7
- Internet Explorer Tabbed Browsing
- Internet Explorer Protected Mode
- Internet Explorer Troubleshooting
- Phishing Filter
- Ready Boost
- Sidebar and Gadgets

Day-5

Network and Sharing in Windows Vista

- Network and Sharing Center
- File and Printer Sharing
- Diagnose and Repair

Day 1: Windows Vista Overview

Module Objectives:

By the end of this module, you will understand:

- Windows Vista and its Features
- Similarities and Differences of Windows Vista Versions
- Windows Vista Clean Installation
- Windows Vista Upgrade Advisor
- Upgrade from Windows XP to Windows Vista

Windows Vista & Features

Windows Vista is an operating system developed by Microsoft for use on personal computers, such as, home and business desktops, laptops, tablet PCs, and media center PCs. The features include:

- **Windows Aero:** The new hardware-based graphical user interface is named Windows Aero Windows Shell: The new Windows shell is significantly different from Windows XP, offering a new range of organization, navigation, and search capabilities.
- **Instant Search (search as you type):** Windows Vista features a new way of searching called Instant Search, which is significantly faster and more in-depth than the search features found in any other previous versions of Windows.
- **Windows Sidebar:** A transparent panel anchored to the side of the screen where a user can place Desktop Gadgets like- Clock, Weather details etc.
- **Internet Explorer 7:** Windows Vista comes with IE7 with feature like- Anti Phishing filter, Protected Mode, New User Interface etc.
- **Media Player 11:** New Media Player supports more file formats, New GUI for Media Library, Xbox 360 integration etc.
- **Backup and Restore Center:** It allows users the ability to schedule periodic backups of files on their computer, as well as recovery from previous backups.
- **Backups:** Incremental backups, stores only the changes each time thus minimizing disk usage.
- **Windows Mail:** Outlook Express is been replaced by Windows Mail with more stability, integrated instant search, phishing filter and junk mail filter.
- **Windows Calendar:** A calendar with task application.
- **Windows Photo Gallery:** It is a photo and movie library management application such as importing images from digital camera, adjusting colors & exposure of an image etc.
- **Windows DVD Maker:** A program that provides the ability to create video DVDs.
- **Windows Media Center:** Windows XP Media Center Edition has been incorporated into the Home Premium and Ultimate editions of Windows Vista.
- **Games and Games Explorer:** Games included with Windows Vista have been modified with new graphics capabilities.
- **Windows Mobility Center:** It is a control panel that centralizes the most relevant information related to mobile computing like- brightness, sound, battery level / power scheme selection, wireless network, screen orientation, presentation settings, etc.
- **Windows Meeting Space:** It is been replaced by NetMeeting in Windows XP or earlier versions of windows. Users can share applications with other users on the local network, or over the Internet using peer- to-peer technology.
- **Shadow Copy:** Automatically creates daily backup copies of files and folders. This feature is available only in the Business, Enterprise, and Ultimate editions of Windows Vista.
- **Windows Update:** Software and security updates have been simplified; now you can update windows by using a utility in control panel rather using web application.

- **Parental controls:** Allows administrators to control which websites, programs and games each standard user can use and install. Business & Enterprise edition does not have this feature.
- **Windows Ultimate Extras:** The Ultimate edition of Windows Vista provides some additional features such as Bit locker, EFS, MUI language pack, Windows Dream scene which allows to MPEG and WMV formats to be saved as desktops.

Windows Vista Editions

Windows Vista operating system is available in six different versions known as 'editions'. Each edition is embedded with particular set of features, which is targeted towards a certain set of user. The editions are:

- **Windows Vista Starter:** This edition allows a maximum of three applications with a user interface at once, does not accept incoming network connections, shows a watermark in the corner of the screen, and has physical memory limit of 1 GB.
- **Windows Vista Home Basic:** Many home users need only a subset of the many features that are available within Windows Vista. They use their computers for relatively simple tasks like creating documents, sending and receiving e-mail, and visiting Web sites. Windows Vista Home Basic was designed for those customers and provides all of the core features of the platform.
- **Windows Vista Home Premium:** Windows Vista Home Premium provides more operating system features than Windows Vista Home Basic. It supports the Windows Aero user interface, which allows for using advanced 3-D features for managing and working with applications. The operating system also offers several advantages for users who have mobile devices such as notebook computers or Tablet PCs. For example, the Windows SideShow feature allows these devices to show important information even when the system is in a low-power.
- **Windows Vista Business:** The needs of business users and organizations differ in some important ways from those of consumers. Microsoft designed Windows Vista Business for small business users, like independent consultants, store owners, or others who work in environments that probably do not have full-time, dedicated IT staff. The primary goals for these users tend to be productivity, data protection, and manageability. Windows Vista Business with its features like Windows Aero, Windows Defender and Windows Firewall, offers ease in terms of user interface and security.
- **Windows Vista Enterprise:** This edition mainly targets the enterprise segment of the market. Additional features include support for Multilingual User Interface (MUI) packages, BitLocker Drive Encryption, and UNIX application-support.
- **Windows Vista Ultimate:** There's a certain set of computer users who rely on technology in practically all areas of their lives. Windows Vista Ultimate has been designed for these users. It includes all the features of Windows Vista Home Premium, along with some useful additions.
Users who will be using their computers to connect to business networks can benefit from several networking-related features. Windows Vista Ultimate allows users to

connect to a domain-based environment, such as a company that uses Active Directory. This is often important for employees and consultants who might use their computers in a variety of different environments. Apart from these security-related features, the Remote Desktop component allows users to easily connect to other computers and for other computers to connect to theirs.



Check Your Understanding

1. Describe the Windows Aero feature of Windows Vista?
2. List different editions of Windows Vista.
3. What is the 'Shadow Copy' feature meant for?

Installation Methods

Method 1: Clean Installation

A clean installation installs new file system entries of Windows Vista operating system and makes all the previously stored data in the hard drive inaccessible.

Method 2: Windows Vista Upgrade from Windows XP

The method is used to upgrade from previous version of Windows Operating System, such as, Microsoft Windows XP Home Edition, Microsoft Windows XP Professional Edition, or Microsoft Windows XP Media Center, and Microsoft Windows XP Media Center.

Method 3: Windows Vista installation to a new hard drive

The method allows the user to install Windows Vista operating system to a new hard drive. The method is commonly performed when the user buys a new system.

Method 4: Install Windows Vista to a new partition (parallel installation)

The method is used to install Windows Vista to a new partition (parallel installation) to either run two operating systems, or to access, repair, or retrieve data from a damaged disk. The method is commonly used for troubleshooting purposes.

Method 5: Repair Installation

The installation method is used when the Windows Vista operating system fails to boot due to software or hardware damage.

Clean Installation

This is carried out when:

- You have a computer with no operating system installed.
- You want to replace your current operating system.

- You want to install Windows Vista on a separate partition of your hard disk.

Minimum Hardware Requirements

Requirements	Home	Premium	Business	Ultimate
Processor	1 GHz 32-bit (x86) or 64-bit (x64) processor			
System Memory	512 MB	1 GB		
Hard Drive Storage Capacity	20 GB	40 GB		
Graphic Memory	32 MB	128 MB		
Disk Drive	DVD-ROM drive			

Clean Installation Process

1. Insert the Windows Vista Ultimate operating system DVD in the DVD drive and reboot the computer. The files will start loading.
2. Then you are prompted to choose the language, time and currency format and keyboard input method. Click **Next**.
3. A screen is displayed where you are asked to choose repair option if you already have windows vista installed or continue the installation. Click **Install now**.
4. Then you are prompted to type the product key and check the box if you wish to activate windows online.
5. Then you are asked if you wish to upgrade your present operating system or do a clean installation. Choose the correct option and scan your system via **Upgrade Advisor** before you do any up gradation.
6. Clean installation also allows you to choose partition & make changes to disk partition but you will lose all the programs, data and settings while doing clean installation.
7. Once you choose clean installation/upgrade, the essential files of Windows Vista will start getting copied.
8. As the installation proceeds you will see green check marks showing the progress level.
9. During the installation process your system restarts a few times.
10. When Windows Vista starts for the first time, it shows the message of completion of the installation process.
11. Then you need to type username and password for secure access.
12. Once you type the required information, click next to type the login details such as password hint.
13. After you provide the details, you are asked to type the computer name and choose the desktop background.

14. Then you are prompted to set the time and date as per your time zone. Provide the details and then click next.
15. When you are prompted to start the Windows Vista, click start to proceed.
16. Type your login password to login to windows.
17. Once you type the password it the welcome screen will be displayed.



Check Your Understanding

1. What do you understand by 'parallel installation'?
2. What are the minimum hardware requirements for clean installation?
3. Describe the clean installation process?

Troubleshooting Scenarios

Scenario 1 - What happens if I don't activate Windows?

Solution: If you don't activate Windows within 30 days after installation, you will not be able to use every feature of Windows. You can regain full use of your computer by activating Windows.

Scenario 2 - Is activation the same as registration?















Solution: No. Activation is necessary, but registration is not. Activation is the process of ensuring that your copy of Windows is used according to the Microsoft Software License Terms. Registration is the process of entering information (such as your e-mail address) to sign up for product support, tools and tips, and other product benefits.

Scenario 3 - How many times can I install Windows on my computer before I have to activate Windows again?


Solution: You can reinstall Windows on the same computer as many times as you want because activation pairs the Windows product key with information about your computer hardware. If you make a significant hardware change, you might have to activate Windows again.

Upgrade Paths for Windows Vista

Sometimes, Windows users might want to upgrade from Windows XP operating system to Windows Vista, or upgrade from one version of Windows Vista to another. However, not all potential upgrade combinations exist. The following table indicates the possible upgrade paths:

	Home Basic	Home Premium	Business	Ultimate
XP Professional			U	U
XP Home	U	U	U	U
XP Media Center		U	U	U
XP Tablet PC			U	
XP Professional x 64				
Windows 2000				

U = Upgrade

 = Clean Installation

Windows Upgrade Advisor

The Windows Vista Upgrade Advisor is a free utility created by Microsoft to provide users with the information they need to determine whether or not they can upgrade their systems to the new operating system. The tool is designed to run on computers running either Windows XP or Windows Vista.

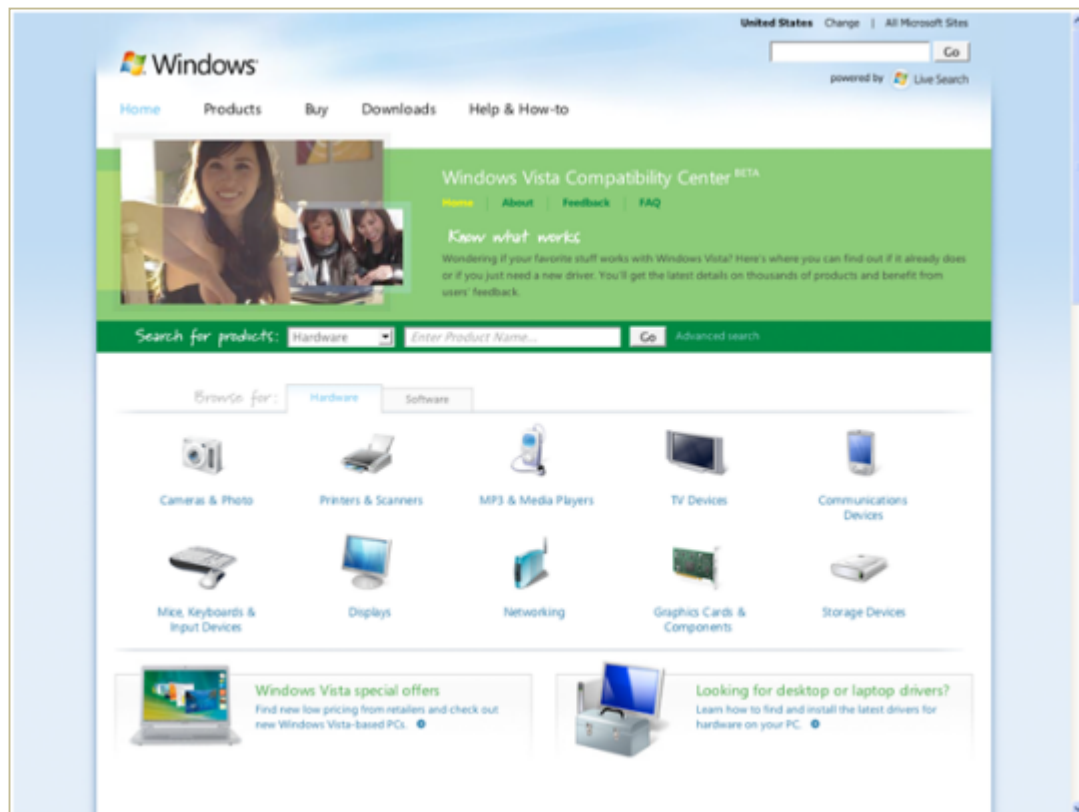


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Windows Vista Compatibility Center

The Windows Vista Compatibility Center for Windows Vista customers contains a list of drivers and applications that are compatible with Windows. To visit Windows Vista Compatibility Center, follow the below link:

<http://www.microsoft.com/windows/compatibility/windows-vista/default.aspx>



Windows Vista Upgrade Process

If customers are running a supported operating system version, they can choose to perform an in-place upgrade. An in-place upgrade to Windows Vista retains the programs, files, and settings from the current version of Windows. Perform the following steps to upgrade an earlier version of Windows to Windows Vista:

1. Start the Windows computer, and then log on to the computer.
2. Insert the Windows Vista CD/DVD into the CD/DVD drive.
3. When the Setup program starts, click **Install now**.

Note: If the Setup program does not start automatically, follow these steps:

- a. Click **Start**, click **Run**, type `Drive:\setup.exe`, and then click **OK**.
- b. Click **Install now**.

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4. On the **Get important updates for installation** page, click **Go online to get the latest updates for installation**.
5. Type the product key, and then click **Next**.
6. Read the license terms, click to select the **I accept the license terms** check box, and then click **Next**.
7. In the **Which type of installation do you want?** page, click **Upgrade**.
8. The Setup program automatically copies files from the Windows Vista DVD to the computer hard disk. During this process, the computer restarts several times.
9. When the **Help protect Windows automatically** page appears, click **Use recommended settings** to increase computer safety and to make the computer easy to use.
10. Verify that the time zone, the date, and the time on the computer are correct, and then click **Next**.
11. Click one of the following locations where the computer would be used:
 - a. **Home**
 - b. **Work**
 - c. **Public location**If you want to use the computer in a variety of locations, click Public location.
12. Click **Start** so that the Setup program automatically checks the computer performance. After the computer performance is completed successfully, Windows Vista starts.
13. When the Windows Vista splash screen appears, remove the CD/DVD from the CD/DVD drive to finish the upgrade.



Check Your Understanding

1. What is the difference between activation and registration of Windows Vista?
2. Can Windows XP Media Centre edition be upgraded to Windows Vista Home Basic edition?
3. What should you do if the setup program does not start automatically on inserting the Windows Vista CD in the CD Drive?

Using the Windows Vista Setup Logs

Windows setup log files are in different locations on the hard disk. These files are created in different phases, discussed below:

Downlevel phase

The downlevel phase is the Windows setup phase runs with the previous operating system. The following table lists important log files in this phase.

Log file	Description
C:\WINDOWS\setupapi.log	Contains information about device changes, driver changes, and major system changes, such as service pack installations and hotfix installations. Note This log file is used only by Microsoft Windows XP and earlier versions.
C:\\$WINDOWS.~BT\Sources\Panther\setupact.log	Contains information about setup actions during the installation.
C:\\$WINDOWS.~BT\Sources\Panther\setuperr.log	Contains information about setup errors during the installation.
C:\\$WINDOWS.~BT\Sources\Panther\miglog.xml	Contains information about the user directory structure. This information includes security identifiers (SIDs).
C:\\$WINDOWS.~BT\Sources\Panther\PreGatherPnPList.log	Contains information about the initial capture of devices that are on the system during the downlevel phase.

Windows Pre-installation Environment phase

The Windows Pre-installation Environment (Windows PE or WinPE) phase occurs after the restart, at the end of the downlevel phase, or when you start the computer by using the Windows installation media. The following table lists important log files in this phase.

Log file	Description
X:\\$WINDOWS.~BT\Sources\Panther\setupact.log	Contains information about setup actions during the installation.
X:\\$WINDOWS.~BT\Sources\Panther\setuperr.log	Contains information about setup errors during the installation.
X:\\$WINDOWS.~BT\Sources\Panther\miglog.xml	Contains information about the user directory structure. This information includes security identifiers (SIDs).
X:\\$WINDOWS.~BT\Sources\Panther\PreGatherPnPList.log	Contains information about the initial capture of devices that are on the system during the downlevel phase.

Or	
C:\\$WINDOWS.~BT\Sources\Panther\setupact.log	Contains information about setup actions during the installation.
C:\\$WINDOWS.~BT\Sources\Panther\setuperr.log	Contains information about setup errors during the installation.
C:\\$WINDOWS.~BT\Sources\Panther\miglog.xml	Contains information about the user directory structure. This information includes security identifiers (SIDs).
C:\\$WINDOWS.~BT\Sources\Panther\PreGatherPnPList.log	Contains information about the initial capture of devices that are on the system during the downlevel phase.

Online configuration phase

The online configuration phase (the first boot phase) starts when you receive the following message:

Please wait a moment while Windows prepares to start for the first time.

During this phase, the basic hardware support is installed. If this is an upgrade installation, data and programs are also migrated. The following table lists important log files in this phase.

Log file	Description
C:\WINDOWS\PANTHER\setupact.log	Contains information about setup actions during the installation.
C:\WINDOWS\PANTHER\setuperr.log	Contains information about setup errors during the installation.
C:\WINDOWS\PANTHER\miglog.xml	Contains information about the user directory structure. This information includes security identifiers (SIDs).
C:\WINDOWS\INF\setupapi.dev.log	Contains information about Plug and Play devices and driver installation.
C:\WINDOWS\INF\setupapi.app.log	Contains information about application installation.
C:\WINDOWS\Panther\PostGatherPnPList.log	Contains information about the capture of devices that are on the system after the online configuration phase.
C:\WINDOWS\Panther\PreGatherPnPList.log	Contains information about the initial capture of devices that are on the system during the downlevel phase.

Windows Welcome phase

The Windows Welcome phase includes the following options and events:

- It provides the options to create user accounts.
- It provides the option to specify a name for the computer.

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- The Windows System Assessment Tool (Winsat.exe) finishes performance testing to determine the **Windows Experience Index** rating.

The Windows Welcome phase is the final setup phase before a user logs in. The following table lists important log files in this phase.

Log file	Description
C:\WINDOWS\PANTHER\setupact.log	Contains information about setup actions during the installation.
C:\WINDOWS\PANTHER\setuperr.log	Contains information about setup errors during the installation.
C:\WINDOWS\PANTHER\miglog.xml	Contains information about the user directory structure. This information includes security identifiers (SIDs).
C:\WINDOWS\INF\setupapi.dev.log	Contains information about Plug and Play devices and driver installation.
C:\WINDOWS\INF\setupapi.app.log	Contains information about application installation.
C:\WINDOWS\Panther\PostGatherPnPList.log	Contains information about the capture of devices that are on the system after the online configuration phase.
C:\WINDOWS\Panther\PreGatherPnPList.log	Contains information about the initial capture of devices that are on the system during the downlevel phase.
C:\WINDOWS\Performance\Winsat\winsat.log	Contains information about the Windows System Assessment Tool performance testing results.

Rollback phase

If a Windows upgrade installation fails, and you have successfully rolled back the installation to the previous operating system desktop, there are several log files that you can use for troubleshooting. The following table lists important log files in this phase.

Log file	Description
C:\\$WINDOWS.~BT\Sources\Panther\setupact.log	Contains information about setup actions during the installation.
C:\\$WINDOWS.~BT\Sources\Panther\miglog.xml	Contains information about the user directory structure. This information includes security identifiers (SIDs).
C:\\$WINDOWS.~BT\Sources\Panther\setupapi\setupapi.dev.log	Contains information about Plug and Play devices and driver installation.
C:\\$WINDOWS.~BT\Sources\Panther\setupapi\setupapi.app.log	Contains information about application installation.

C:\\$WINDOWS.~BT\Sources\Panther\PreGatherPnPList.log	Contains information about the initial capture of devices that are on the system during the downlevel phase.
C:\\$WINDOWS.~BT\Sources\Panther\PostGatherPnPList.log	Contains information about the capture of devices that are on the system after the online configuration phase.



Check Your Understanding

1. What does the log file setupapi.log mean for? Which phase is it used in?
2. When does the online configuration phase start?

Day 2: Parallel Install, Repair Install & Troubleshooting

Module Objectives:

By the end of this module, you will understand:

- Windows Vista Parallel Installation process
- Windows Vista Repair Installation process
- Windows Vista Troubleshooting Installation issues
- Windows Vista Boot process
- Windows Vista Boot related issues
- Windows Vista Service packs
- Windows Vista diagnostics

Parallel Installation Process

A Windows Vista parallel installation creates a new copy of Windows Vista on your system. After a parallel installation, you will have two separate Windows Vista installations on different hard drive partitions.

It can be carried out using the following steps:

1. Insert the Windows Vista CD/DVD into the CD/DVD drive and restart the computer
2. Press any key to boot.
3. Select your installation Language, Time, Currency Format and keyboard type. Click on **Next** to continue.
4. Click **Install Now**.
5. Then you are prompted to choose the type of installation you wish to do, select **Custom** to continue.
6. Select a different partition or another hard drive (if available).
If you wish to install another version of Vista in the same partition then you need to create a new folder to install the other version.

Note: *If the Setup program detects another operating system folder, it prompts you to type the name for the new folder after the backslash (\), for example, \WINVISTA. If there are no other operating systems detected, the Setup program automatically names the folder \Windows.*

7. Follow the wizard instructions to continue the installation process.

Repair Installation Process

The repair install process of Windows Vista is same as Windows XP operating system. To perform a repair install process in Windows Vista, you will need to follow the steps mentioned below:

1. Insert the Windows Vista installation CD.
2. Choose the language and location.
3. Go to Windows Vista page and select **Install now** option.
4. On the same page, select the option **Repair your computer**. (This option is embedded at the bottom left corner.)
5. Then follow the instructions that appear on the screen to install Windows Vista.



Check Your Understanding

1. What is the difference between parallel installation and repair installation?

Troubleshooting Windows Vista Installation Issues

Sometimes hardware devices or software programs stop working when you install the new operating system. You can avoid many of these issues by taking advantage of tools such as the **Windows Vista Upgrade Advisor**, or by visiting the vendor Web sites of the applications for up-to-date information about operating system compatibility.

As a customer support technician, you might need to provide support to customers who experience the following issues:

Pre-installation Issues:

- Blue or Black screen, or a screen that does not change
- Dirty DVD Disk
- Computer loses power
- Monitor does not display clear image
- Error Messages

Post-installation Issues:

- Hardware problems
- Program compatibility problems

Pre-installation Troubleshooting Steps:

Blue or Black screen, or a screen that does not change:

This is usually caused by hardware or software that is incompatible with Windows Vista. If you have this problem, follow these steps:

1. Wait about 10 minutes; watch the hard disk indicator to see if there is any activity.
2. Uninstall all antivirus software, and then restart your computer. Enable antivirus software after you install Windows.
3. If the installation fails again, there might be a hardware incompatibility problem. Go to the **Windows Vista Upgrade Advisor** on the Microsoft website to see if your computer can run Windows Vista.
4. If you have compatible hardware and your computer still stops responding, disable any unnecessary hardware. Remove universal serial bus (USB) devices; remove or disable network adapters, sound cards, and serial cards; and then re-install.
5. If the computer still stops responding during installation, contact your computer manufacturer or retailer.

Troubleshooting dirty DVD disk problem:

If you get a file copying problem during installation it may be due to dust or dirt on the DVD. To resolve the issue, clean-up the disk.

Computer Loses Power

If your computer loses power during installation, Windows will attempt to revert to your current operating system. You can continue to use your current version of Windows, but some features might not work.

Before you try to install Windows again,

- Troubleshoot and eliminate the problems that might have caused your computer to lose power.
- Check power cables and power strips and replace any faulty parts. When you have done this, try installing Windows Vista again.
- Back up your files and then perform a clean installation.
- Manually reinstall your programs and restore the files you backed up, when the installation is completed.

Monitor does not display Clear Image

Make sure that the monitor cable connections are tight and that the video card is correctly installed in the computer. If the monitor image flickers, you might need to change the monitor resolution.

Error messages while installation:

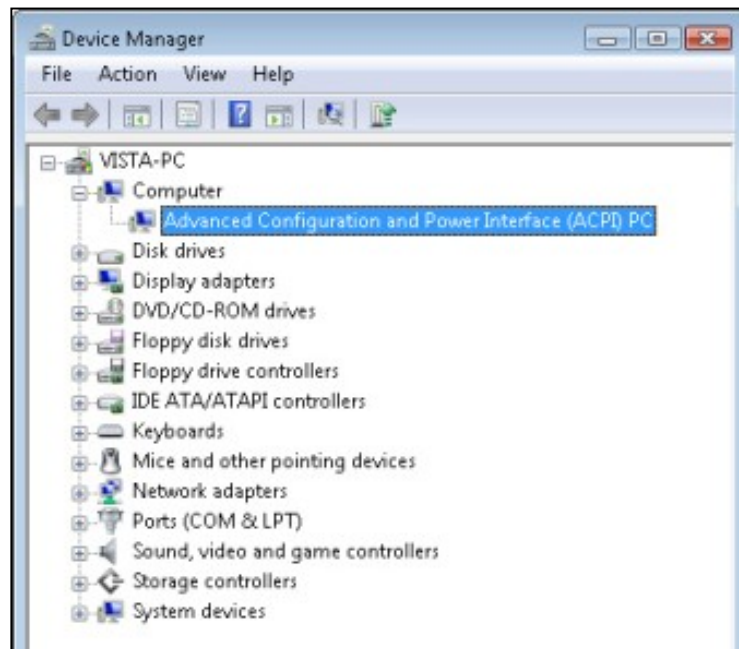
Error message	Cause	Resolution
Upgrade has been disabled. Windows cannot determine if another operating system exists on your computer. Try repairing the boot configuration, and then begin the installation again.	Boot.ini File contains incorrect entries or does not have the correct location.	Edit boot.ini file and incorporate correct entries
Upgrade has been disabled. You must rename or remove <FolderName> before upgrade can continue.	<ul style="list-style-type: none"> • You are trying to upgrade a Microsoft Windows XP-based computer. • Your current Windows directory is not named Windows. Also, another folder that is named 	<ul style="list-style-type: none"> • Rename the user folder. • Delete the user folder.

	Windows exists on the computer. <ul style="list-style-type: none"> • A Users folder exists on the same drive as the Windows directory. • A Program Data folder exists on the same drive as the Windows directory. 	
Upgrade has been disabled. To upgrade Windows, your hard disk partition must be formatted as NTFS. To reformat the partition, cancel the installation, open the Command Prompt window, and then type: convert c: /fs:ntfs	Upgrading a version of Windows that is installed on a FAT32 Volume.	Convert the hard disk partition from FAT32 to NTFS.

Post-installation Troubleshooting Steps:

Troubleshooting Hardware Compatibility Issues:

1. Verify whether a particular hardware device is supported using the Windows Vista Upgrade Advisor. If not, remove the device.
2. Download and install updated drivers manually after you install Windows Vista. It is always best practice to check Windows Update first, then the manufacturer's Web site, and then, as a last resort, locate the original installation media and see whether the driver works.



Troubleshooting Application Compatibility Issues:

1. Verify the compatibility of problem application with Windows Vista by visiting the software manufacturer's Web site.
2. Use **Program Compatibility Wizard** that enables you to run older programs in an environment that simulates earlier versions of Windows. To start the Program Compatibility Wizard, open **Control Panel**, click **Programs**, click **Use An Older Program With This Version Of Windows** and start the wizard.

Program Compatibility Wizard

Select a compatibility mode for the program

Choose the operating system that is recommended for this

- ☒ Microsoft Windows 95
☐ Microsoft Windows NT 4.0 (Service Pack 5)
☐ Microsoft Windows 98 / Windows Me
☐ Microsoft Windows 2000
☐ Do not apply a compatibility mode



Check Your Understanding

1. What should you do if computer loses power during the installation of Windows Vista?

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2. How should you resolve the issue if you come across the error message **Upgrade has been disabled. You must rename or remove <FolderName> before upgrade can continue?**
3. What are the ways to deal with hardware incompatibility issues in Windows Vista, after the installation?

Windows Vista Boot Process

1. When the computer is turned on, the CMOS loads the BIOS and runs POST.
2. The BIOS loads the MBR, which indicates the first active partition.
3. The MBR loads the Boot Sector of the active partition.
4. The Boot Sector of the partition points to BOOTMGR file so it could be loaded.
5. The execution of BOOTMGR performs the following actions:
 - a. It locates the BCD (Boot Configuration Data) file which contains boot options of Vista.
 - b. If there is more than one operating system installed on our PC, it shows you a menu in which you can select the desired OS.
6. When you select Windows Vista, BOOTMGR transfers the control to the Windows Loader (winload.exe)
7. Windows Loader loads drivers that are set to start at boot and then transfers the control to the Windows kernel and Windows is started.

Boot Process Comparison—Windows XP and Windows Vista

1. In Windows Vista, NTLDR has been replaced by three new boot loader components:
 - a. **Windows Boot Manager (Bootmgr.exe)**: Reads BCD and displays OS menu
 - b. **Windows OS Loader (Winload.exe)**: Invokes Windows boot manager to load the operating system kernel (NTOS KERNEL.exe) and boot class device drivers.
 - c. **Windows Resume Loader (Winresume.exe)**: Replaces Hiberfil.sys used during hibernate mode
2. Msgina.dll used to show the custom login screen in XP no more exists in Windows Vista boot process.
3. The Boot Sector of the partition is modified. Now it contains the name of the first file that has to be loaded and executed (BOOTMGR).

Windows Vista Boot-Related Issues

1. Boot Process is Slow.

Causes:

- a. BIOS configuration has some obscure commands.
- b. System has a password lock.
- c. System loads unnecessary programs at the time of booting.
- d. Windows Vista registry is unorganized.
- e. The file system is outdated.

Resolution:

- a. Change the BIOS settings and turn off unused network adapters, onboard chips, and memory test
- b. Eliminate boot up passwords.
- c. Kill Resources HOGS to cut down unnecessary programs.
- d. Disable the Indexing Service for faster booting.

2. Boot Process Completely Stops.**Causes:**

- a. File system damage.
- b. Operating system malfunction.
- c. Incompatible device driver update.
- d. MFT (Master File Table) corruption.
- e. MBR (Master Boot Record) damage.
- f. Registry damage.

After effects:

- a. A STOP error message on a blue/black screen
- b. A blinking cursor with no error message
- c. An error message

Resolution:

- a. Use start-up Repair Utility.
- b. If the utility fails, perform clean installation of the operating system.

3. Boot Process Restarts Automatically.**Causes:**

- a. System failure.

Resolution:

- a. Disable **Automatic Restart on System Failure**.

**Check Your Understanding**

1. What has the file NTLDR in Windows XP been replaced with in Windows Vista?
2. What are the basic reasons for Boot Process to slow down?
3. What steps should one follow if the Boot Process stops suddenly?

Windows Vista Service Packs

Microsoft continuously improves the Windows Vista Operating System by providing ongoing updates while working with software and hardware vendors to help them to deliver improved compatibility, reliability and performance. These updates are provided to customers in the form of **Service Packs**.

Methods to download the latest service pack:

Method 1: Turn on Automatic Updates (Recommended for most users)

Method 2: Check for updates on Windows Update (Same as Method 1 but not automatic)

Windows Vista Service Pack 1

Few quality improvements incorporated in Windows Vista Service Pack 1 are:

- Helps prevent data loss while ejecting NTFS file system–formatted removable media
- Improves the reliability of networking in Windows Vista
- Increased reliability and performance of Windows Vista when entering sleep and resuming from sleep.
- Improves the progress estimation when copying files by using Windows Explorer so that the time estimate in the progress window appears within two seconds.
- Improves the speed of adding files to and extracting files from compressed folders.
- Improves the performance of power transitions (for example, resuming from hibernation and standby mode).
- Improves the performance of domain-joined computers when operating off the domain. Before Windows Vista SP1, users would experience long delays when opening the File dialog box.
- Improves battery life on some computers by reducing CPU use and redrawing the screen less frequently.
- Reduces the time to return to a user's session when using the Photo screensaver.
- Improves overall media performance by reducing many glitches.
- In internal testing, reduces by approximately 75 percent the time to start Event Viewer.
- Improves the built-in backup solution to include Encrypting File System (EFS)–encrypted files
- Improved reliability and compatibility of Windows Vista when used with newer graphics cards in several specific scenarios and configurations.
- Improved reliability when working with external displays on a laptop.
- Improved Windows Vista reliability in networking configuration scenarios.
- Improved reliability of systems that were upgraded from Windows XP to Windows Vista.
- Increased compatibility with many printer drivers.
- Strengthens the cryptography platform with a redesigned random number generator (RNG) that leverages the TPM, when present, for entropy and complies with the latest standards.

- Improves security in smart card scenarios.
- Provides security software vendors a more secure way to communicate with Windows Security Center.

Hardware Standards

Windows Vista Service pack 1 provides support for current hardware innovations and anticipated future innovations. It:

- Enhances support for 64-bit computers.
- Includes support for new storage technologies.
- Enhances the Windows Network Projector to custom projector resolutions.
- Adds new capabilities to Windows Media Center.
- Includes support for new wired and wireless networking standards.
- Adds support for the Parental Controls Games Restrictions.

Infrastructure optimization

Windows Vista SP1 improves the deployment, management, and support experience for Windows Vista customers. It:

- Helps organizations better deploy Windows Vista updates.
- Improves using Windows Pre-installation Environment (Windows PE) as a deployment platform for Windows Vista.
- Allows the Key Management Service (KMS) to run within a virtual machine (VM).
- Enables flexible computing models.

Windows Vista Service Pack 2

Windows Vista Service Pack 2 (SP2) is an important update that includes support for new types of hardware and emerging hardware standards. Also, it includes all the updates that have been released since SP1.

Some of the improvements in SP2 are:

- **Program compatibility:** SP2 includes previously released updates that are available to you when you use Windows Update.
- **Hardware support:** SP2 provides you with additional support for Bluetooth wireless technology and improved performance for Wi-Fi connections after the computer resumes from sleep mode. Additionally, you can now record data to Blu-ray Disc media.
- **General operating system updates:** SP2 includes Windows Search 4.0, which has improved indexing and searching capabilities. SP2 also includes fixes that can improve recording TV using Windows Media Center.



Check Your Understanding

1. List any three features of Windows Vista Service Pack 1.
2. What are the new Hardware Standards followed by Service Pack 1?
3. What are the updates in Service Pack 2 from Service Pack 1?

Troubleshooting Windows Vista Service Pack Issues

Scenario 1 – While installing SP1, some computers may run into issues that block the installation or cause it to fail. Some of them are:

- A problematic driver
- A hard disk that is corrupted
- Memory failures
- Software and file system synchronization issues

Solution:

Perform the following steps in the specified order:

- Ensure that you do not have a problematic driver.
- Ensure that you have enough disk space.
- If the installation still fails, open Command Prompt, and run the **chkdsk /f** command. The Chkdsk tool checks the file system and metadata for errors, and fixes them. Try again to install SP1.
- If the installation still fails, open Command Prompt, and run the **SFC /scannow** command. The System File Checker tool scans all protected files to verify their versions, and updates them. Try again to install SP1.
- If the installation still fails, open Command Prompt, and run the **MdSched.exe** command. The **Windows Memory Diagnostic tool** checks the random access memory (RAM) for errors. Try again to install SP1.
- If the installation still fails, download and extract the KB947821 update from the Microsoft Download Center.

Scenario 2 - You might receive any of the below error messages while installing Windows Vista SP1:

- Service Pack did not install. Reverting changes Installation was not successful. An internal error occurred while installing the service pack.
- 0x80070002 ERROR_FILE_NOT_FOUND
- 0x8007000D ERROR_INVALID_DATA
- 0x800F081F CBS_E_SOURCE_MISSING

- 0x80073712 ERROR_SXS_COMPONENT_STORE_CORRUPT
- 0x800736CC ERROR_SXS_FILE_HASH_MISMATCH
- 0x800705B9 ERROR_XML_PARSE_ERROR
- 0x80070246 ERROR_ILLEGAL_CHARACTER
- 0x8007370D ERROR_SXS_IDENTITY_PARSE_ERROR
- 0x8007370B ERROR_SXS_INVALID_IDENTITY_ATTRIBUTE_NAME
- 0x8007370A ERROR_SXS_INVALID_IDENTITY_ATTRIBUTE_VALUE
- 0x80070057 ERROR_INVALID_PARAMETER
- 0x800B0100 TRUST_E_NOSIGNATURE
- 0x80092003 CRYPT_E_FILE_ERROR
- 0x800B0101 CERT_E_EXPIRED
- 0x8007371B ERROR_SXS_TRANSACTION_CLOSURE_INCOMPLETE

Solution:

- Check and ensure that your **Windows Modules Installer Service** (trustedinstaller.exe) is not disabled and stopped.
- Restart your computer and check for Windows Update again.
- Check your hard disk for errors.
- Disable your antivirus, firewall, anti-spyware and restart the computer.
- Run the System File Checker Tool.
- Run the **Windows Vista Memory Diagnostic Tool**. Your computer will restart and the diagnostic program will show-up. Resolve the problem.

Scenario 3 - You encounter the following error message while installing SP2:

Service Pack installation cannot continue. One or more system components that the service pack requires are missing.

Solution:

- Perform an in-place upgrade to Windows Vista.
- Perform a clean reinstall of Windows Vista.

Scenario 4 - You encounter any of the following situations after installing Windows Vista Service Pack 2:

- A sound device or hardware device may no longer work.
- The speaker symbol next to the clock in the notification area may display the following message:
'No Audio Output Device is installed'
- The Sound Controller in Device Manager displays a yellow exclamation point. The sound quality changes. For example, if you previously had surround sound, you may now have stereo sound.

Solution:

- Restart your system.
- Try another sound device.
- Unplug the System's speakers.
- Verify that the default sound device is set correctly.
- Verify that the sound driver is installed.
- Reload current sound driver.
- Update the current sound driver.

**Check Your Understanding**

1. What might be the reasons for Service Pack 1 installation to fail?
2. What should you do if you get the error message **0x80070002 ERROR_FILE_NOT_FOUND** while installing Service Pack 1?
3. If you find that a sound device has stopped working after installing Service pack 2, what should you do to solve the problem?

Windows Vista Diagnostics

Windows Diagnostic Infrastructure (WDI) uses logic to analyze the output from Vista's internal software routines, and thus troubleshoots your problem.

- **Network Diagnostics and Troubleshooting:**

The Windows Network Diagnostics tool in Windows Vista helps you identify the top potential issues preventing network connectivity—and it automatically takes appropriate steps toward correcting them.

- **Disk Diagnostics:**

Hard disks usually show warning signs before failure, which in the past were merely logged in the system event log. Windows Vista has built-in diagnostics which listen for these messages. The troubleshooter not only alerts you, but also suggests data backup and disk replacement techniques.

- **Memory Diagnostics:**

The Vista Memory Diagnostics monitors the memory hardware. If the built-in Vista diagnostics finds an error it will alert you and ask you to run more exhaustive analysis with the Windows Memory Diagnostic tests.

- **Resource Exhaustion Prevention:**

Resource Exhaustion Prevention warns you when critical resources are low—before a hang or crash occurs.

- **Resource Exhaustion Prevention:**

Resource Exhaustion Prevention warns you when critical resources are low—before a hang or crash occurs. In Windows Vista, it enables an administrator to perform the following tasks:

1. **View events from multiple event logs** – In Vista, the Event Viewer enables you to filter specific events across multiple logs, which makes it easier to investigate issues and troubleshoot problems that might be logged in several logs. To specify a filter that spans multiple logs, you need to create a custom view.
2. **Save useful event filters as custom views that can be reused** – Once you have queried and sorted the events you wanted to analyze, you can save your search filters and have it available for reuse in the future.
3. **Schedule a task to run in response to an event** – With the Event Viewer you can automate responses to events. Event Viewer is integrated with Task Scheduler, enabling you to associate tasks to events.
4. **Create and manage event subscriptions** – You can collect events from remote computers and store them locally by specifying event subscriptions.



Check Your Understanding

1. How does the Network Diagnostic feature work in Windows Vista?
2. Can you save Filter settings and use them again in future? If yes, how?

Day 3: Vista Recovery and User Accounts

Module Objectives:

By the end of this module, you will understand:

- Windows Vista Recovery Environment
- Advanced boot Options
- User Accounts
- User Account Control

Windows Recovery Environment

Windows Recovery Environment (WinRE) is a set of tools included in the Windows Vista operating system to help diagnose and recover from serious errors which may be preventing Windows from booting successfully.

Steps to start Windows Recovery Environment are:

1. Insert the Windows Vista CD/DVD in the drive and restart the computer.
Note: *The computer must be configured to boot to the CD/DVD drive.*
2. Press any key to boot from CD or DVD.
3. Configure the **Language to install, Time and currency format**, and **Keyboard or input method** options so that they are set correctly. When done, press the **Next** button.
4. In the Install Windows dialog box, click **Repair your computer**.
5. In the System Recovery Options dialog box, select the appropriate operating system, and then click **Next**. If controller drivers are needed, click **Load Drivers**.
6. In the **System Recovery Options** window, select the appropriate option.



System Recovery Options available in Windows Recovery Environment are:

Startup Repair

When you run Startup Repair, it scans your computer for the problem and then tries to fix it so your computer can start correctly.

Limitations:

- Hardware failures, such as, a failing hard disk or incompatible memory
- Fatal virus attacks

Common scenarios where you can use Startup Repair utility - When you encounter the following error message:

- File: \Boot\BCD
Status: 0xc0000034
Cause: The Windows Boot Configuration Data file is missing required information.
- Boot mgr missing, Please press CTRL Alt Delete to Restart.
Cause: Bootmgr is corrupt or missing.
- Stop: 0x00000000 (0x00000000 0x00000000 0x00000000 0x00000000)
tcpip.sys - Address 0x00000000 base at 0x00000000 DateStamp 0x00000000
Cause: TCPIP.SYS file corruption.
- File:\windows\system32\boot\winload.exe
status:0xc0000001
Cause: Winload.exe file is corrupt or missing.

System Restore

This utility creates a restore point whenever you make any changes to your computer. Through System Restore, you can reset your computer to an earlier date according the restore points available in the system restoration list.

Create a Restore Point

To create a restore point, follow the below steps:

- Click **Start** and choose **Control Panel**.
- Double-click **Backup & Restore Center** icon.
- Click **Create a restore point or change settings** available in the left pane of the Backup & Restore Center window.
- Once you click **Create a Restore Point** it will display a new window, click **Create** at the bottom right of the dialogue box to create a system restore point.
- Now, type the description or name of the new restore point, type the name and then click **Create**.
- A restore point is created and you also receive a confirmation message for the same.

Common scenarios where you can use System Restore utility – When you encounter the following error message:

- 0x000000f4 (0x0000000000000003, 0xfffffa8008ab5c10, 0xfffffa8008AB5E48, 0xfffff80002144530)
Cause: Critical system processes and threads have been corrupted.
- 0x0000C1F5
Cause: \$TxfLog file is corrupted and the Common Log File System (Clfs.sys) driver is unable to fix it.
- Stop 0x0000007e
Cause: Device driver issue



Check Your Understanding

1. What are the conditions in which the Start-up Repair option does not work ?
2. How do you create a restore point?

Windows Complete PC Restore

This feature allows you to create backup images of your computer so that you can do a system-wide restore in the case of complete system failure.

While using Windows Complete PC Restore, if you select the **Format and repartition disks** option, it will repartition and format the hard drive you are restoring to exactly as it was when you made the backup or else, it will just erase the hard disk and restore the data to it.

Data Backup

In Windows Vista, Microsoft has provided more capabilities and automation and wrapped it up in a more intuitive GUI to help novice users backup the data that should be backed up without having to become disaster recovery or data backup experts.

Backup Files

You can save the data to a CD/DVD or Hard drive or on Network. Once you choose the location to save the file, click Next and you will be guided to select the files you wish to backup.

Backup Computer

By using this option, you can take the complete backup of the computer. This includes all kinds of programs, files, folders, and system files. You can save the data to a CD/DVD or **Hard drive** or on **Network**. Once you choose the location to save the file, click 'Next' to continue the backup process.

Restore Files

Once you click **Restore Files** a new window will be displayed which will prompt you to choose the backup you wish to restore like the latest backup or older backup. The dialog box also allows you to:

- Run system restore to repair the system
- Restore data from Recycle Bin.
- Download NT Backup utility from Microsoft Website.

Click **Next** to continue the restoration process.

Troubleshooting Data Backup and Restoration Problems:

Scenario 1 – You receive the following error message:

The Directory Name is Invalid.

Cause:

This problem occurs because the Temp folder (%temp%) is not restored after you restored the backup. Typically, the Temp folder is found at the following location:

C:\Windows\Temp

Solution: Recreate the Temp folder by following these steps:

- Run **md %windir%\temp** at the command prompt.
- Click **Start**, type **%windir%** in the **Start Search** box, and then click **Windows** in the **Programs** list to launch the **Temp** folder
- Clear the **Include inheritable permissions from this object's parent** check box.
- Click **Remove**, and then click **OK**.
- You will receive two warning messages. Click **Yes** in each warning message.
- Click **OK** two times to close the **Advanced Security Settings** dialog box and the folder properties dialog box.
- Run the following at the command prompt:
icaccls %windir%\temp /grant "BUILTIN\Users:(CI)(S,WD,AD,X)"
"BUILTIN\Administrators:(F)" "BUILTIN\Administrators:(OI)(CI)(IO)(F)"
"NT AUTHORITY\SYSTEM:(F)" "NT AUTHORITY\SYSTEM:(OI)(CI)(IO)(F)"
"CREATOR OWNER:(OI)(CI)(IO)(F)"

Scenario 2 – You receive the following error message:

System Recovery Option

This version of System Recovery Options is not compatible with the version of Windows you are trying to repair. Try using a recovery disc that is compatible with this version of Windows.

Cause:

This error may occur if you use the 32-bit version of the Windows Vista installation disc to run the Complete PC Restore program on a computer that is running the 64-bit version of Windows Vista.

Solution:

To work around this behavior, on the **Select operating system** page, select the blank space in the list under the Windows Vista operating system, and then click **Next**.



Check Your Understanding

1. Can you repartition your hard disk while using Complete PC Restore? If yes, how?
2. While doing Data Backup, you come across the error "Directory name is invalid." How would you solve the problem?
3. What would you do if the Windows Vista installation disc version is incompatible with the Complete PC Restore program running on the computer.

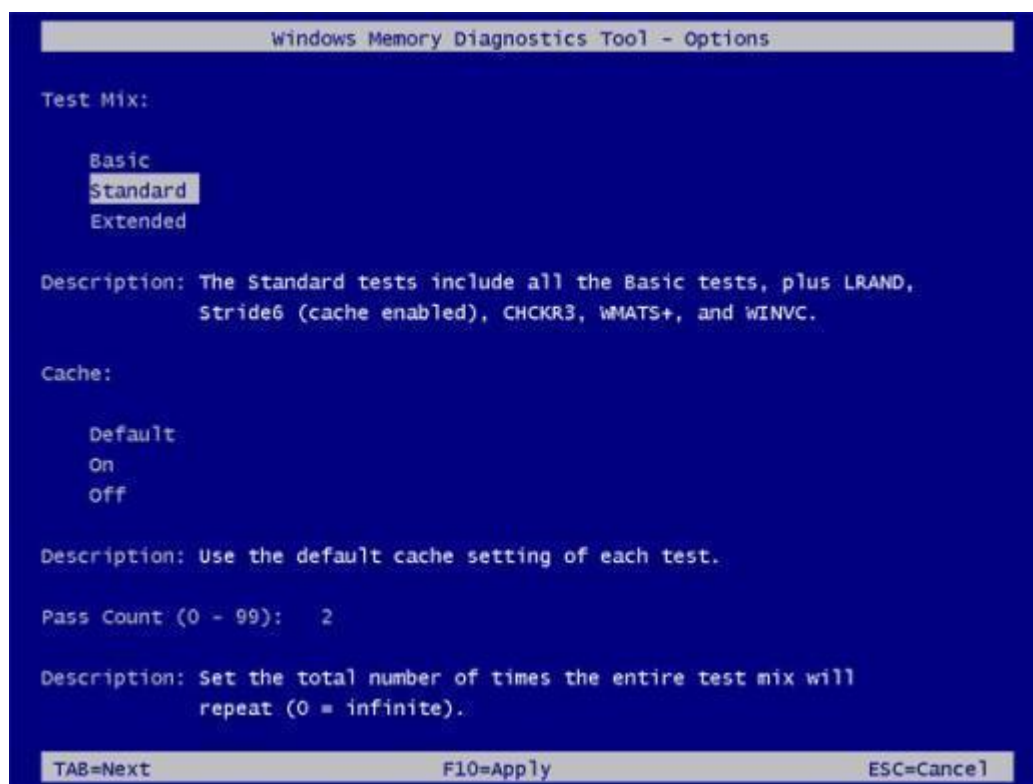
Memory Diagnostics Tool

This utility performs a series of tests on the physical memory and lists any errors that are found.

1. As you click this option, this presents you a dialog box asking you whether or not to restart and check for problems now.



2. The tool offers some configuration options. To access them, press F1 and the following screen will appear:



Here you can adjust the following settings:

- **Test mix** - Choose what type of test you want to run: basic, standard or extended.
- **Cache** - Choose the cache setting you want for each test.
- **Pass count** - Type the number of times you want to repeat the tests.

Command Prompt

The list of commands available in the command line shell for Windows Vista is similar to that for Windows XP but with some additions. The following table lists the entire set of commands used in Windows Vista:

S No.	Description	Run Command
1.	Display Adapter Troubleshooter	AdapterTroubleshooter
2.	Authorization Manager	azman.msc
3.	Bitlocker Wizard	bitlockerwizard
4.	Color Management	colorcpl
5.	Computer Management Launcher	CompMgmtLauncher

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6.	Control Panel	control
7.	Credential Backup and Restore Wizard	credwiz
8.	Defragment User Interface	dfrgui
9.	Driver Package Installer	dpinst
10.	DPI Scaling	dpiscaling
11.	DVD Player	dvdplay
12.	Event Viewer	eventvwr
13.	Firewall Control Panel	FirewallControlPanel
14.	Firewall Settings	FirewallSettings
15.	Windows Shared Folder Management	fsmgmt.msc
16.	Bitlocker Notifier	fvenotify
17.	Fax Cover Sheet Editor	fxscover
18.	Help Pane	helppane
19.	Iexpress (Self Extracting Package Creator)	iexpress
20.	iSCSI Initiator	iscsicpl
21.	Logoff from Windows (Warning: when you run this it will log you off immediately)	logoff
22.	Language Pack Installer	lpksetup
23.	Windows Mobility Center (only available on mobile pcs)	mbctr
24.	Microsoft Sync Center	mobsync
25.	Microsoft Support Diagnostic Tool	msdt
26.	Remote Assistance	msra
27.	User Accounts	Netplwiz
28.	ODBC Data Source Administrator	odbcad32

29.	Optional Features Manager	optionalfeatures
30.	People Near Me	p2phost
31.	Performance Monitor	perfmon
32.	Presentation Settings (only available on mobile pcs)	presentationsettings
33.	Printer Migration	PrintBrmUi
34.	Encryption File System	rekeywiz
35.	Windows Backup Utility	sdclt
36.	Accessability Settings	sethc
37.	Windows Share Creation Wizard	shrpubw
38.	Software Licensing (Windows Activation)	slui
39.	Sound Volume	sndvol
40.	Snipping Tool (an Advanced Print Screen function)	snippingtool
41.	Sound Recorder	soundrecorder
42.	Sticky Note	StikyNot
43.	System Properties (Advanced preselected)	SystemPropertiesAdvanced
44.	System Properties (Computer Name preselected)	SystemPropertiesComputerName
45.	System Properties (Data Execution Prevention preselected)	SystemPropertiesDataExecutionPrevention
46.	System Properties (Hardware preselected)	SystemPropertiesHardware
47.	System Properties (Performance preselected)	SystemPropertiesPerformance
48.	System Properties (Protection preselected)	SystemPropertiesProtection
49.	System Properties (Remote	SystemPropertiesRemote

	preselected)	
50.	Ditilizer Calibration Tool	tabcal
51.	Trusted Platform Module	TpmInit
52.	Problem Reports and Solutions	wercon
53.	Windows Firewall with Advanced Security	wf.msc
54.	Windows Fax and Scan	wfs
55.	Windows Image Acquisition (requires a scanner)	wiaacmgr
56.	Windows Update App Manager	wuapp
57.	Windows Standalone Update Manager	wusa

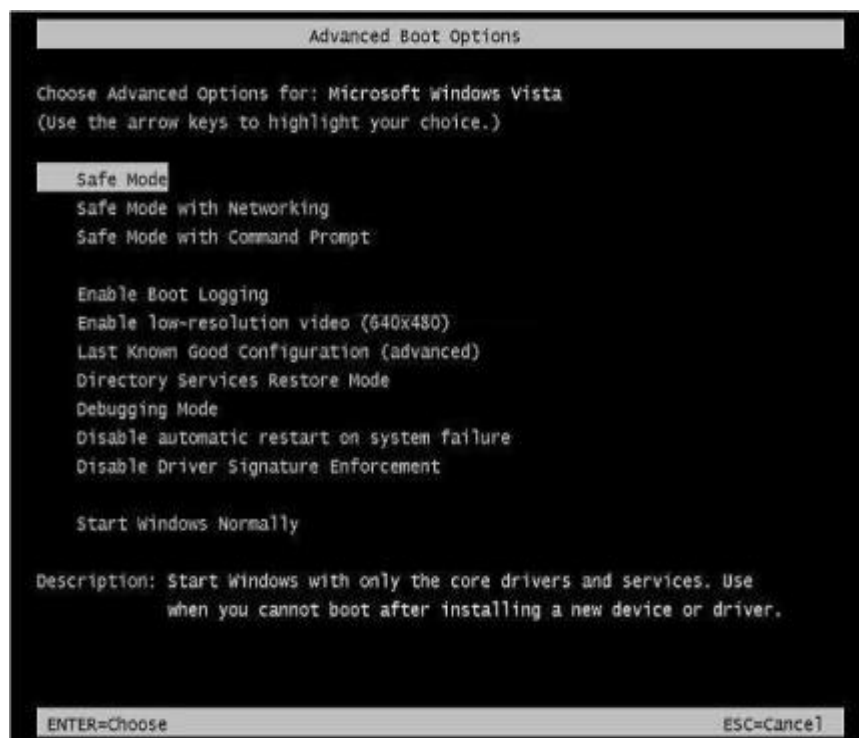


Check Your Understanding

1. What all settings can you define with Memory Diagnostic tool?
2. What command would you run on the command prompt to launch Credential Backup and Restore Wizard?

Advance Boot Options

The Advanced Boot Options menu lets you start Windows in advanced troubleshooting modes. You can access the menu by turning on your computer and pressing the F8 key before Windows starts.



Description of Advance Boot Options:

- **Safe mode:** Starts Windows with a minimal set of drivers and services.
- **Safe mode with networking:** Starts Windows in safe mode and includes the network drivers and services needed to access the Internet or other computers on your network.
- **Safe mode with command prompt:** Starts Windows in safe mode with a command prompt window instead of the usual Windows interface. This option is intended for IT professionals and administrators.
- **Enable boot logging:** Creates a file, ntbtlog.txt that lists all the drivers that are installed during startup and that might be useful for advanced troubleshooting.
- **Enable low resolution video (640 x 480):** Starts Windows using your current video driver and using low resolution and refresh rate settings. You can use this mode to reset your display settings.
- **Last Known Good Configuration (advanced):** Starts Windows with the last registry and driver configuration that worked successfully.
- **Directory services restore mode:** Starts Windows domain controller running Active Directory so that the directory service can be restored. This option is intended for IT professionals and administrators.
- **Debugging mode:** Starts Windows in an advanced troubleshooting mode intended for IT professionals and system administrators.
- **Disable automatic restart on system failure:** Prevents Windows from automatically restarting if an error causes Windows to fail. Choose this option only if

Windows is stuck in a loop where Windows fails, attempts to restart, and fails again repeatedly.

- **Disable Driver Signature Enforcement:** Allows drivers containing improper signatures to be installed.
- **Start Windows normally:** Starts Windows in its normal mode.



Check Your Understanding

1. What is the difference between Directory Services Restore mode and Debugging mode under Advance Boot options?

User Accounts

A user performs a logon by using a combination of a user name and a password. Each user account has its own collection of settings and permissions. These include the following:

- **User profile:** A user profile contains all of the operating system preferences that are defined separately for each user account. Examples include desktop wallpaper options, the Windows Sidebar configuration, and application shortcuts.
- **Application settings:** Each user profile has its own collection of application settings. These settings usually pertain to personal preferences for an application (such as, default paths, toolbar layouts, and related details).
- **User data folder:** Each user has his or her user data storage location on the computer. This enables multiple users of the same computer to keep their files separate from each other.
- **Other user-specific folders:** To improve consistency and usability for operating system users, each user profile includes several shortcuts to special folders. Examples include Music, Pictures, Saved Games, Documents, Downloads, and Videos. Each user has his or her separate shortcuts and storage locations for these default folders.
- **Security privileges and policy settings:** Each user account has a set of security-related actions that it can perform. For example, users might have restrictions related to logon hours or installing applications.
- **File system permissions:** These are details related to which actions the user can take on which files. For example, a user will be allowed to create and delete documents in his or her own user data folder but will not be able to access another user's data folder.

Types of User Accounts

Standard User Accounts

The default type of user account in Windows Vista is a standard user account. This account is designed to provide basic permissions for completing common daily tasks. It allows users to launch applications, create new documents, and modify basic system configuration settings.

Administrator User Accounts

Accounts that have Administrator permissions can perform any operation or task on the system. This includes all of the permissions that are granted to a standard user account plus the ability to make major operating system changes, install new software, and create and modify other user accounts.

The Guest Account

A third type of account that is created with default Windows Vista installations is the Guest account. This account is designed for users who require temporary access to a computer and don't need to store their user-specific profile settings permanently. Users who log on as a guest have a very limited set of permissions. For example, they cannot perform system wide tasks such as installing software or hardware.



Check Your Understanding

1. What all application settings can you govern in a user account?
2. What are the different types of user accounts? What are the differences between them?

Adding User Accounts

The Windows Vista Control Panel provides utilities for quick and easy access to user accounts. To access the relevant settings, you need to have Administrator permissions on the computer.

- You can open the **Manage Accounts** window by clicking the **Add or Remove User Accounts** link in the **User Accounts and Family Safety** section of the Control Panel.
- The default view shows a list of all of the users who are currently configured on the computer and an overview of their settings.
- The **Create a New Account** link starts the process of creating a new user. The details required include the name of the new account and whether the account should be created as a standard user (the default option), or as an Administrator.

Configuring User Accounts

There are several different operations that are commonly performed when managing user accounts. You can access these by clicking the name or icon of an account in the Manage Accounts window.

The options include the following:

- Change The Account Name
- Change The Password (or Create A Password if the account does not currently have one)
- Remove The Password (if one is currently configured)
- Change The Picture
- Set Up Parental Controls
- Change The Account Type
- Delete The Account

User Account Control

User Account Control (UAC) in Windows Vista makes it easier to use your PC with standard user privileges. You can create a separate user account for each member and control which websites, programs, and games he or she can use and install.

The following controls can be handled using UAC:

- Turn User Account Control on or off.
It can help you prevent unauthorized changes to your computer. It works by prompting you for permission when a task requires administrative rights, such as installing software or changing settings that affect other users.
- Change the behavior of the User Account Control message for administrators in Admin Approval Mode.
- Change the behavior of the User Account Control message for standard users.

Troubleshooting UAC in Windows Vista

Scenario 1 - When you update, remove, or repair a program in Windows Vista, you may receive the following User Account Control (UAC) notification message:

An unidentified program wants to access your computer

Cause: This may occur if any of the following conditions are true:

- The program installation used a Windows Installer package.
- The update used a Windows Installer update.
- The package or update was digitally signed.

Solution: Click **Yes** in the **User Account Control** dialog box to let the update, repair, or remove operation continue.



Check Your Understanding

1. What steps would you follow to add a user account?
2. What would happen if the user account control is turned to 'off'?
3. What would you do if you encounter the following error message while updating a program in Windows Vista:

An unidentified program wants to access your computer

Day 4: Windows Vista Utilities

Module Objectives:

By the end of this module, you will understand:

- Bit Locker
- Windows Defender
- Aero Feature
- Parental Controls
- Easy Transfer
- Internet Explorer 7
- Internet Explorer Tabbed Browsing
- Internet Explorer Protected Mode
- Internet Explorer Troubleshooting
- Phishing Filter
- Ready Boost
- Sidebar and Gadgets

BitLocker

Windows BitLocker Drive Encryption is a full disk protection feature incorporated in Windows Vista Enterprise and Windows Vista Ultimate editions. It helps mitigate unauthorized data access on lost or stolen computers by combining two major data-protection procedures:

1. **Encrypting the entire Windows operating system volume on the hard disk:** Bit Locker encrypts all user files and system files in the operating system volume, including the swap and hibernation files.
2. **Encrypting multiple fixed volumes:** Once the operating system volume has been encrypted, Bit Locker can encrypt other volumes. This feature requires a computer running Windows Vista Enterprise with Service Pack 1 (SP1), Windows Vista Ultimate with SP1, or Windows Server 2008.



Trouble shooting BitLocker Problems

Scenario 1 - When you try to use Windows BitLocker Drive Encryption in Windows Vista, you may receive the following error message:

The drive configuration is unsuitable for BitLocker Drive Encryption. To use BitLocker, please re-partition your hard drive according to the BitLocker requirements. The BitLocker Drive Encryption feature in Windows Vista generates heavy disk activity after you restart the computer in Windows PE or in Windows RE

Cause: This problem may occur if the hard disk is configured incorrectly for BitLocker Drive Encryption. For BitLocker to work, you must have at least two partitions on the hard disk. The first partition contains the startup information. This volume is not encrypted. The second partition contains the operating system and user data. This volume is encrypted.

Solution: If the computer has a single partition, you can use the BitLocker Drive Preparation Tool to reduce the operating system partition. Then, you can create a separate partition for BitLocker.

Scenario 2 - When you try to run the BitLocker Drive Encryption program, you may receive the following error message in a BitLocker Drive Encryption Error dialog box:

Cannot run. The path specified in the Boot Configuration Data (BCD) for a BitLocker Drive Encryption integrity-protected application is incorrect. Please verify and correct your BCD settings and try again.

Cause: This problem occurs if one of the following entries in the Boot Configuration Data (BCD) store points to the incorrect partition:

- Windows Boot Manager
- Windows Memory Tester
- Resume from Hibernation

Solution: To resolve this problem, edit the following BCD entries:

- **Windows Boot Manager**
Set this entry to point to the system partition. To do so, follow these steps:
 1. Login as Administrator
 2. At the command prompt, type **bcdedit -set {bootmgr} devicepartition=S:**
Note: In this command, *S*: represents the drive letter for the system partition.
- **Windows Memory Tester**
Set this entry to point to the system partition. To do so, type the following command at the elevated command prompt:
bcdedit -set {memdiag} device partition=S:
Note: In this command, *S*: represents the drive letter for the system partition.
- **Resume from Hibernation**
Set this entry to point to the operating system partition. To do so, follow these steps:
 1. At the elevated command prompt, type **bcdedit -enum all**.
Note the **identifier** value for the **Resume from Hibernation** entry.
 2. At the elevated command prompt, type **bcdedit -set {identifier} device partition=C:**.
Note: In this command, *identifier* represents the **identifier** value for the **Resume from Hibernation** entry in step 1 of this procedure.
Also, *C*: represents the drive letter for the boot partition.



Check Your Understanding

1. Describe the two methods used by BitLocker for data encryption.
2. What type of hard-disk partition is required for BitLocker Drive Encryption to work? Explain.
3. What command would you use to make Windows Memory Tester point to System partition?

Windows Defender

Windows Defender is meant to protect, remove, and quarantine spyware in Windows Vista. This utility gets updated automatically to protect your system from latest threats.

To enable or to customize the Windows Defender settings, go to Control Panel and double-click Windows Defender icon.



Troubleshooting Windows Defender

Scenario 1- You receive the following error message:

Check for new definitions. Definitions allow Windows Defender to detect the latest harmful or unwanted software and prevent it from running on your computer.

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Cause: The Windows Defender tool is unable to automatically download and update its definition

Solution: Follow the below steps to resolve the above error message:

- Start Windows Defender.
- Click **Check for Updates Now**.

Scenario 2 - You receive one of the following error messages when you try to check for updates, to download updates, or to install updates from the Windows Update Web site:

- The program can't check for definition updates Error found: Code *error_code*
- The program can't download definition updates Error found: Code *error_code*
- The program can't install definition updates Error found: Code *error_code*

Cause: The Windows Defender tool is unable to automatically download and update its definition

Solution: Follow the below steps to resolve the above error message:

- Start Windows Defender.
- Click **Check for Updates Now**.

Scenario 3 – You receive the following error while doing updates for defender.
error 800700b

Solution:

1. Login as Administrator
2. Type **fsutil resource setautoreset true c:** at the command prompt.
3. Restart the computer.

Scenario 4 - You receive the following error while doing updates for defender.
error 0x80240022

Solution:

1. Run>cmd>run as administrator>cd to programs files>cd windows defender
then type the command
A:mpcmdrun\$-removedefination\$-all
B:mpcmdrun\$-signatureupdate

Scenario 5 - You receive the following error while doing updates for defender.

error 0x80240029

Resolution: Go to www.support.microsoft.com/kb/934562



Check Your Understanding

1. What action would you take if Windows Defender tool is unable to download and update its definition automatically?
2. What command would you run at the command prompt to solve the error 800700b for Windows Defender?

Windows Device Manager

The Device Manager is a Control Panel applet in Microsoft Windows Vista operating system. It allows users to view and control the hardware attached to the computer.

Some functionalities of this feature are:

- Supplies device drivers for the hardware
- Enables or disables devices
- Informs Windows to ignore malfunctioning devices
- Views other technical properties

You can start Windows Device manager by following these steps:

1. Open Control Panel.
2. Double-click **System** to open the System Properties window.
3. Click the tab titled **Hardware**.
4. Then in the upper-left of the window, under Tasks, click the link labeled Device manager. You will be presented with a list of all the components installed on your computer.

Troubleshooting Windows Device Manager in Windows Vista

Scenario1- Hardware you expect to find is not listed

Cause: If you cannot find the hardware you expect to find, it is likely the hardware is installed incorrectly.

Solution: You should power down your computer and locate the physical hardware on your computer. Verify it is installed correctly, and restart your computer. You may be asked to provide drivers during this installation.

Scenario2 - A yellow exclamation mark appears next to your hardware

Cause: A yellow exclamation mark next to your hardware means the device is recognized by Windows but is not working properly.

Solution: This usually indicates a driver problem. Update your drivers by following the directions below.

1. Right-click on the hardware and choose **Properties**.
2. Click on the **Driver** tab.
3. Click on **Update Driver**.
4. Click on **Search automatically for updated driver software**.
5. Windows will automatically look for updated drivers for your hardware.

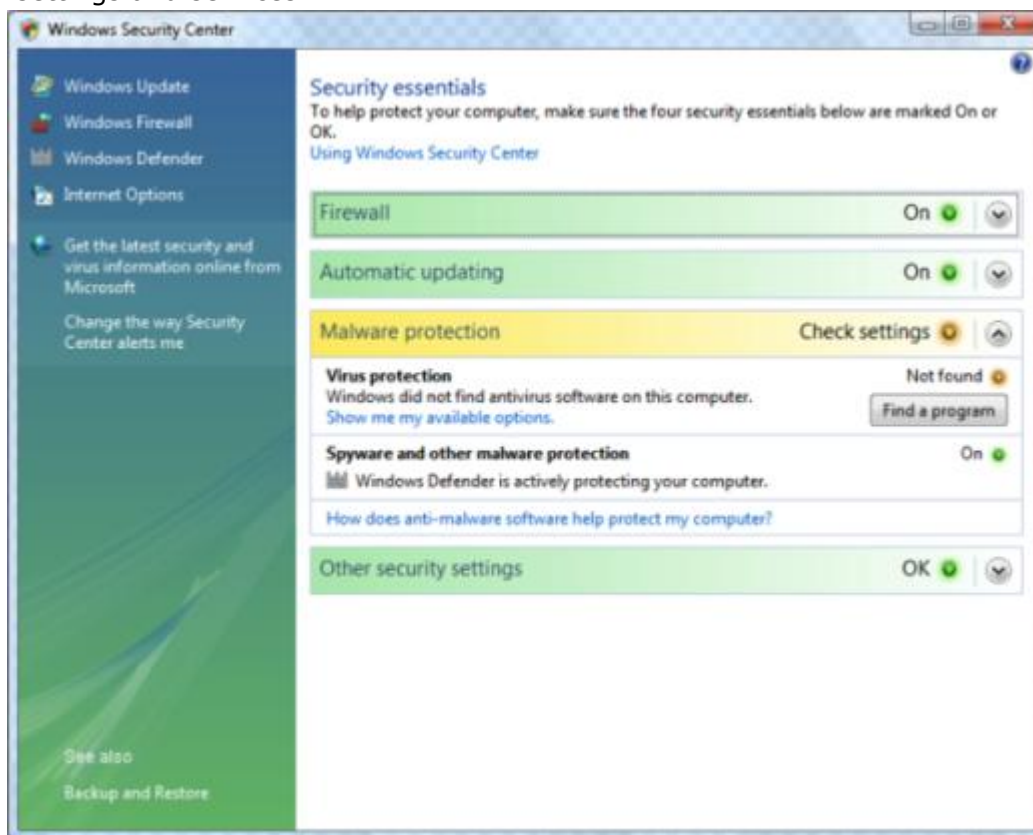
Scenario3 - A red X appears next to your hardware

Cause: A red X indicates that the hardware is disabled.

Solution: Right-click on the hardware and click **Enable**. Your hardware should no longer have a red X.

Windows Security Center

The Windows Security Center provides users with the ability to view the status of computer security settings and services.



Firewall

A firewall can help prevent hackers or malicious software (such as worms) from gaining access to your computer through a network or the Internet. A firewall can also help stop your computer from sending malicious software to other computers.

If the firewall is off, Security Centre will display a notification and put a Security Centre icon in the notification area.

To turn on Windows Firewall

1. Open Security Centre
2. Click **Firewall**, and then click **Turn on now**.

Automatic updating

Windows can routinely check for updates for your computer and install them automatically. You can use Security Centre to make sure Automatic updating is turned on. If updating is turned off, Security Centre will display a notification and put a Security Center icon in the notification area.

To turn on automatic updating

1. Open Security Centre.
2. Click **Automatic updating**, and then click **Turn on now**.

Malicious software protection

Malicious software (malware) protection can help protect your computer against viruses, spyware, and other security threats. Security Centre checks if your computer is using up-to-date antispyware and antivirus software. If your antivirus or antispyware software is turned off or out of date, Security Centre will display a notification and put a Security Centre icon in the notification area.

To install or update your anti-malware software

1. Open Security Centre.
2. Click **Malware protection**, click the button under Virus protection or Spyware and other malware protection, and then choose the option that you want.

Other security settings

Windows checks your **Internet security settings** and **User Account Control settings** to make sure they are set at the recommended levels. If your Internet or User Account Control settings are changed to a security level that is not recommended, Security Centre will display a notification and put a Security Centre icon in the notification area.

To restore Internet settings to recommended levels

1. Open Security Centre.

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2. Click **Other security settings**.
3. Under Internet security settings, click **Restore settings**.
4. Do one of the following:
 - To automatically reset the Internet security settings that are at risk to their default level, click **Restore my Internet security settings now**.
 - To reset the Internet security settings yourself, click **I want to restore my Internet security settings myself**. Click the security zone you want to change settings for, and then click **Custom level**.

To restore User Account Control settings to recommended levels

1. Open Security Centre.
2. Click **Other security settings**.
3. Under **User Account Control**, click **Turn on now**.

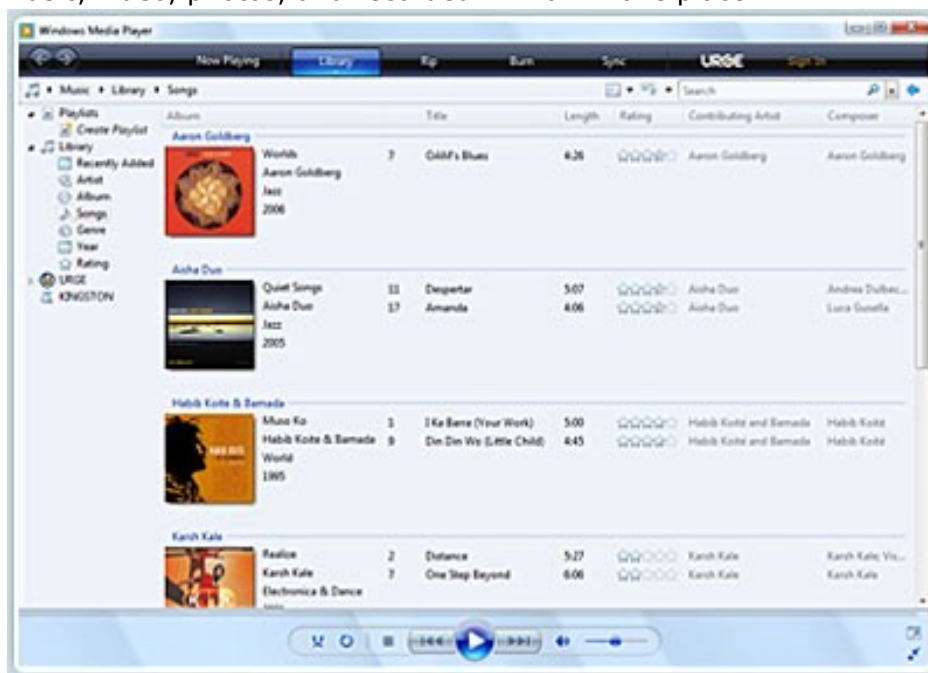


Check Your Understanding

1. What is Windows Device Manager used for?
2. What is the difference between 'Firewall' and 'Malware Protection'?
3. What is the option 'Other Security Settings' in Windows Security Centre meant for?

Windows Media Player 11

Windows Media Player 11 is included with Windows Vista and offers great ways to store and enjoy your music, video, photos, and recorded TV—all in one place.



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Windows Media Player 11 is embedded with these features:

- Easy-to-operate due to interactive and streamlined user-interface
- Provides thumbnail preview of all your music files
- Optimized to handle large collection of music
- Allows user to create custom playlists by dragging songs and albums into the List pane
- Allows synchronization of portable devices
- Includes audio waveform matching that pinpoints the exact album information that goes with your tracks
- Allows user to rip songs from CDs into two audio formats: Windows Media Audio Pro and lossless WAV.

Windows Vista Easy Transfer

Windows Easy Transfer is a wizard that helps you transfer the data that is important to you. You can easily transfer your entire user account or all user accounts on the computer, or you can make custom selections of the data and folders to transfer. Windows Easy Transfer provides a number of ways for you to connect two computers to transfer your data. These include:

- **Easy Transfer Cable.** This is a special USB cable that is designed to work with Windows Vista and Windows Easy Transfer. This solution is supported on Windows XP- and Windows Vista-based computers.
- **Home or small business network.** If you already have a wired or wireless network, this is a great way to transfer all of your data.
- **Removable hard drive.** Windows Easy Transfer can copy your data to removable hard drive and then you can copy data from that drive to your new computer.
- **CD and DVD.** Windows Easy Transfer can use a computer's CD or DVD burner to transfer user data. This is a great solution if you are moving only a small amount of data that can fit onto one disc.

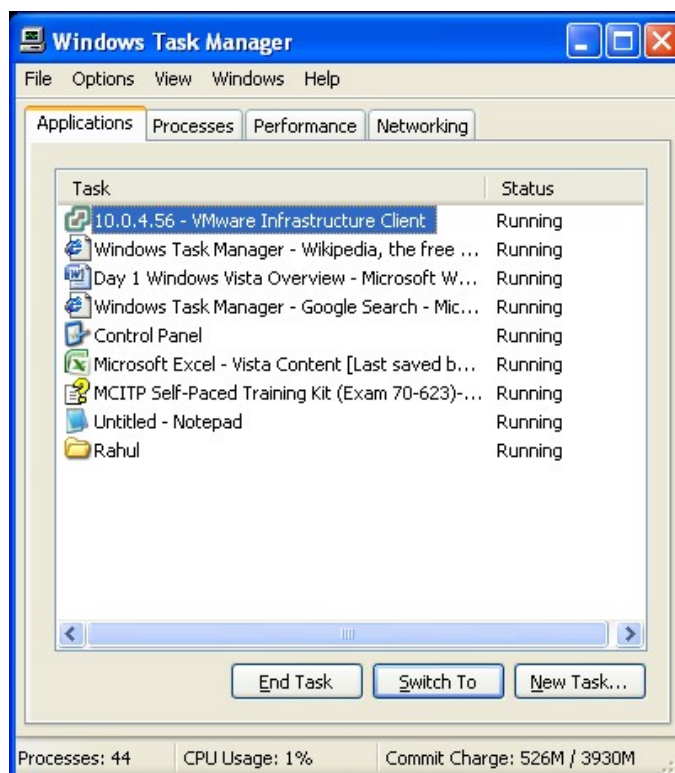
Windows Task Manager

Windows Task Manager is a task manager application that provides detailed information about computer performance and running applications, processes and CPU usage, commit charge and memory information, network activity and statistics, logged-in users, and system services. The Task Manager can also be used to set process priorities, processor affinity, forcibly terminate processes, and shut down, restart, hibernate or log off from Windows. The Task Manager can be launched using any of the following four methods:

1. Using the context menu on the taskbar and selecting **Task Manager**.
2. Using the key combination Ctrl+Shift+Esc.
3. In Windows NT, Windows 2000, and Windows Vista, use the key combination Ctrl+Alt+Del to open the Windows Security dialog, then click on **Task Manager**. In

Windows XP, pressing Ctrl+Shift+Esc directly launches Task Manager, as does Ctrl+Alt+Delete unless you have disabled the Welcome Screen.

4. Starting **Taskmgr.exe** from a command line, GUI (located in C:\Windows\System32\taskmgr.exe) or a shortcut.



Check Your Understanding

1. What are the features of Windows Media Player 11?
2. What are the modes with which you can transfer data through Windows Vista Easy Transfer?
3. What is Windows Task Manager used for? How do you launch it?

Aero Feature

Windows Aero offers a user experience that makes it easier to visualize and work with your information, and it provides a smoother, more stable desktop experience.



Key Features for Windows Vista Aero:

- **Enable Glass Feature**
Aero Glass is the high end version that is only available with the right video card. To enable Aero Glass, your computer must be equipped with a 3D that supports DirectX 9 and has a Longhorn Display Driver Model (LDDM) driver.
- **Enable 3D Flip**
Windows Flip 3D uses the dimension of visual depth to give you a more comprehensive view of your open windows.
- **Enable Dynamic windows**
When you minimize a window, it animates to its place on the taskbar, so it's easier to find when you need it.
- **Enable High dots-per-inch (dpi) support**
Windows Aero supports high-resolution monitors, so you can get a laptop or flat-screen monitor that's smaller in size but shows visually richer, displaying high-resolution, easy-to-read images. Windows Vista can scale both its interface and certain programs to 144 dpi for high-demand, graphics-intensive programs.
- **Enable Live taskbar thumbnails**
In Windows Aero, live taskbar thumbnail images display the actual contents of both windows that are currently open and those that are minimized in the taskbar.

Troubleshooting Windows Vista Aero

Scenario 1- I installed a new video card that meets the requirements for running Aero, but I'm still not getting Aero. Is there anything I can do?

Solution: Yes. If the graphics card and driver were installed after Windows Vista was first set up, depending on the manufacturer, you might need to update the computer's performance score, which will automatically enable Aero.

To update your computer's performance score

1. Open **Performance Information and Tools**.
2. Click **Update my score**.

Scenario 2 - I'm running Aero on a laptop and can't consistently get Aero glass. Is there anything I can do?

Solution: Yes. If you are running the Power saver plan, Windows sometimes turns off transparency automatically. If you don't want this to happen, you can switch to the Balanced power plan.

To change an existing power plan

1. Open **Power Options**.
2. On the **Select a power plan** page, click **Balanced**.

Scenario 3 - Can I turn Aero off?

Solution: Yes. If you see poor display quality using the Aero colour scheme, try changing to another colour scheme, such as Windows Vista Basic, to see if performance improves.

1. Open **Appearance Settings**.
2. In the **Colour scheme** list, select another colour scheme, and then click **OK**.

Scenario 4 - Which editions of Windows Vista include Aero?

Solution: The following editions include Aero: Windows Vista Business, Windows Vista Enterprise, Windows Vista Home Premium, and Windows Vista Ultimate. Aero is not included in Windows XP or earlier versions of Windows.

Scenario 5 - Aero is disabled after resuming the computer from the sleep mode.

Resolution: Force Enable Aero.

1. Click on Start and type regedit at run.

2. Now Navigate to the following registry key:

HKEY_CURRENT_USER\Software\Microsoft\Windows\DWM

3. In the right details pane, create following Three DWORD (32-bit value) entry

4. UseMachineCheck, and set its value to 0.

5. Blur, and set its value to 0.

6. Animations, and set its value to 0.

7. Close Regedit.

8. Click on Start and type CMD with administrative Privileges.

9. Now type following command

a. Net Stop uxsms

b. Net Start uxsms

10. Above command will stop and start Desktop Window Manager Session Manager.

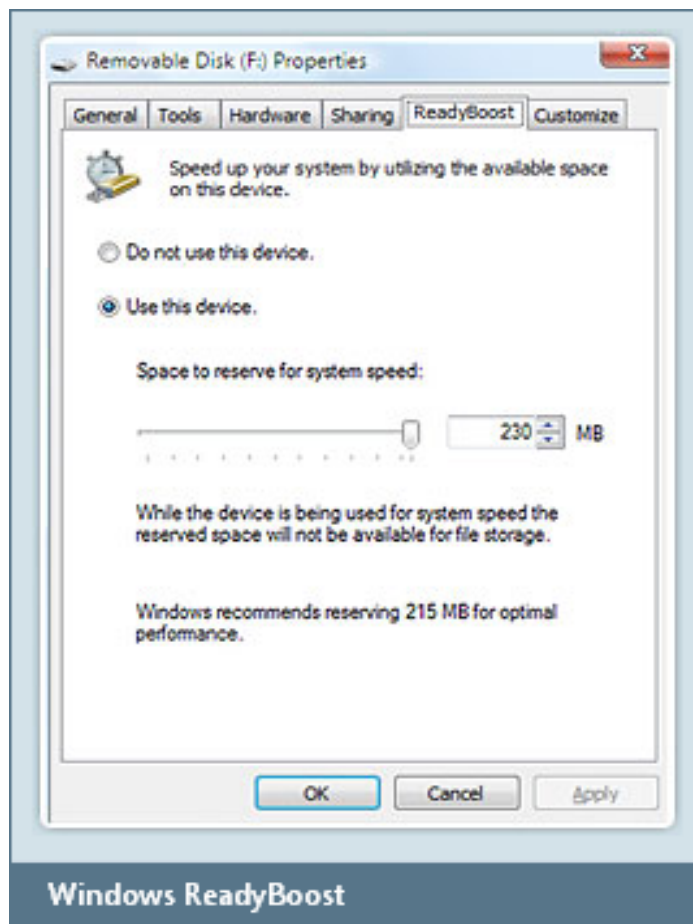
11. Now you can turn on Aero by right clicking on desktop-> Personalize -> Select Windows Colors

Windows ReadyBoost

With Windows ReadyBoost, you can use non-volatile flash memory, such as, that on a Universal Serial Bus (USB) flash drive, to improve performance without having to add additional memory 'under the hood'.

The flash memory device serves as an additional memory cache — that is, memory that the computer can access much more quickly than it can access data on the hard drive. Windows ReadyBoost relies on the intelligent memory management of Windows SuperFetch and can significantly improve system responsiveness.

It's easy to use Windows ReadyBoost. When a removable memory device such as a USB flash drive or a secure digital (SD) memory card is first inserted into a port, Windows Vista checks to see if its performance is fast enough to work with Windows ReadyBoost. If so, you are asked if you want to use this device to speed up system performance. You can choose to allocate part of a USB drive's memory to speed up performance and use the remainder to store files.



Troubleshoot Windows ReadyBoost:

Scenario 1 - You purchase a vista-compatible flash drive from Microsoft. The user instructions tell you that there will be a message when the flash drive is inserted that displays an option to use the drive with the ReadyBoost feature. However, when you insert the flash drive, nothing gets displayed.

Cause: The likely reason for this is because your system is probably already configured to use this device with ReadyBoost. Therefore the popup message will not be displayed.

Solution: To double check the settings try this:

- Click **Start**.
- Right-click **My Computer**.
- Right-click the USB drive letter in question.
- Click the ReadyBoost tab.

Scenario 2 - Windows Vista ReadyBoost feature stops working once you install Windows Vista Service Pack 1. In addition, you encounter a pop-up message stating that if you want to run Readyboost, whenever you connect a memory stick.

Cause: The root cause for the halting the ReadyBoost feature is the changes made in the Windows registry.

Solution: To resolve the above issue, follow the below steps:

1. Go to following registry value:
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\WindowsNT\CurrentVersion\EDMgmt
2. Remove all its sub values
3. Re-insert the flash memory stick
4. Re-open regedit and change the following memory stick settings Vista has created:

"CacheSizeInMB"=dword:000003c0

"CacheStatus"=dword:00000001

"DeviceStatus"=dword:00000002

"ReadSpeedKBs" = 10000000

"WriteSpeedKBs" = 10000000

5. Close Regedit and right-click memory stick from **My Computer**.
6. Go to the ReadyBoost tab and set the cache size as you like.



Check Your Understanding

1. What should you do if you are not able to use the Glass feature in Windows Vista Aero on a laptop?
2. Describe the ReadyBoost feature in Windows Vista.
3. What steps should you follow to solve the problem if you find that ReadyBoost feature has stopped working after the installation of Service Pack 1 in Windows Vista.

Windows Sidebar and Gadgets

Windows Sidebar

Windows Sidebar is a pane on the side of the Microsoft Windows Vista desktop where you can keep your gadgets organized and always available.

You can customize Windows Sidebar to suit your preferred location—always on top or resting below maximized windows.



Gadgets

Gadgets are mini applications with a variety of possible uses. They can connect to web services to deliver business data, weather information, news updates, traffic maps, Internet radio streams, and even slide shows of online photo albums. Gadgets can also integrate with other programs to provide streamlined interaction.

Parental Controls

The Windows Vista Parental Controls feature is designed to provide several different types of restrictions on how children access programs and Web sites. It can also control when they can use the computer. The specific types of restrictions include the following:

- **Web Restrictions** Managing which Web sites children can access
- **Time Limits** Specifying when children are allowed to log on to the computer and how long they can use it
- **Games Controlling** access to games and other entertainment software based on third-party content ratings
- **Allowing Or Blocking Programs** Preventing children from running specific applications on the computer

Troubleshooting Parental Controls

Scenario 1: You are trying to make changes to parental controls and get the error message Unable to make changes to parental controls settings. If this problem persists, contact your system administrator.

Cause: System File corruption or the system file is not genuine.

Resolution:

1. Login as administrator.
2. Run the following command at the command prompt.
sfc /scannow



Check Your Understanding

1. What kind of gadgets can you use with Windows Vista?
2. What should you do if you are unable to make changes to 'Parental Control' settings?

Internet Explorer 7

Internet Explorer 7 (IE7) is the web browser that comes with Windows Vista. In IE7, you can navigate through tabbed browsing and web search right from the toolbar. You can also print and easily, read, and subscribe to Really Simple Syndication (RSS) feeds.

IE 7 Features

- New stream lined look to maximize size of the Web Page view
- Offers multiple, interrelated security features to help defend your system against malware
- Tab headings across the screen so you can easily switch between web pages without losing the existing page
- Dynamic secure session
- Layout of Toolbars is change and it also includes search box, news, feeds etc.
- Reduces size of text when printing so it fits on the page
- Clean user Interface
- Easy-to-manage

IE 7 Configuration

Go to **Control Panel** and double-click on **Internet Options**.

1. The **Internet Properties** dialog box opens that consists of numerous tabs. The first tab is **General** that allows you to delete the cookies, history, passwords and

temporary files. You can also set the default home page and change the appearance of IE7, using this tab.

2. Under **Security**, you can set the security zone or change security settings for Internet, Local Intranet, Trusted sites, and Restricted sites. It also allows you to reset the default settings or customize the settings as per your needs.
3. **Privacy**, as the name suggests, allows you to customize the cookies settings, such as, allowing or blocking any cookie, overriding cookies. It also allows you enable or disable the popup blocker.
4. The fourth tab **Content** enables you to enable or disable the content advisor (a utility used to monitor the content to be viewed on the browser). You can also clear SSL (Secure Sockets Layer) State and customize the certificate settings for the secured sites and encrypted connections. The tab also allows you to customize the Auto Complete and Feeds settings as per your needs.
5. The fifth tab is **Connections** where you can setup the Internet connection or VPN connection. It also allows you to modify Dialup and LAN settings.
6. The sixth tab is **Programs** that enables you to set the IE browser as default browser, manage add-ons, choose program as HTML editor, and customize the programs you wish to use for other Internet services.
7. The last tab is **Advanced** which enables you to check or uncheck the IE settings. It also allows you to reset the settings by using **Restore advanced settings** button.

Uninstall IE 7

1. Log on to an administrator-type account in Windows Vista.
2. Click the **Start** button and open **Control Panel**.
3. Click **Programs**, then click **Programs and Features**.
4. Click **View installed updates** on the left panel.
5. Scroll down the list of Windows updates and find the entry **Windows Internet Explorer 7**.
6. Right-click on **Windows Internet Explorer 7** and select **Uninstall**.
7. Click **Yes** on a prompt to restart your computer and finish uninstalling Internet Explorer 7.

Rollback IE 7 to IE 6

1. Click the Windows **Start** menu button and click **Control Panel**.

2. Double-click the **Add or Remove Programs** to launch the installed programs list. Click the **Show updates** check box on the top.
3. Scroll down and click **Windows Explorer 7**. Click **Remove**. Click **OK** to confirm and remove the web browser from your computer.
4. Alternatively, double-click **My Computer** to launch Windows Explorer. Click the **Tools** menu button and click **Folder Options**. Click the **View** tab. Click the **Show hidden files and folders** radio button and click **OK** to save the changes.
5. Click the Windows **Start** menu and click **Run**. Type **%windir%\ie7\spuninst\spuninst.exe** to launch the IE 7 uninstall wizard. Follow the guided prompts to complete the uninstallation. When the uninstallation completes, IE 7 rolls back to IE 6.

Troubleshooting Internet Explorer 7.0

Scenario1 - Application Freezing in IE 7

Cause:

- Incompatible Browser Extension
- Add-ons
- Spyware or Malware
- Extremely slow performance loading Office Live Workspace

Solution:

The first step in troubleshooting this issue is to run Internet Explorer in "No Add-ons" mode.

Restart Internet Explorer. If it runs smoothly, then it can be determined that one of the add-ons was causing the problem. You will need to continue troubleshooting this issue until you find out which add-on was causing the problem. You will need to do this using the Manage Add-ons feature.

Note: You will need to reverse the above steps to place Internet Explorer 7 back in regular mode for troubleshooting purposes.

Note: You may want to speed this process by disabling 3 or more add-ons at a time.

Scenario 2 - Error while installing Internet Explorer 7

Install the latest updates for Internet Explorer and the Microsoft Windows Malicious Software Removal Tool (recommended)

Cause: This problem has been known to occur when you select the **Install the latest updates for Internet Explorer and the Microsoft Windows Malicious Software Removal Tool (recommended)** check box during the installation of Internet Explorer 7.

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Solution:

To resolve this problem, run the Windows Internet Explorer 7 installation program and clear the **Install the latest updates for Internet Explorer and the Microsoft Windows Malicious Software Removal Tool (recommended)** check box. To do this, follow these steps.

1. Double-click the Windows Internet Explorer installation program. If you are prompted, click **Run**.

Note: To download Windows Internet Explorer 7, visit the following Microsoft Web site: <http://www.microsoft.com/windows/downloads/ie/getitnow.mspx>

2. On the **Welcome to Windows Internet Explorer 7** page of the installation program, click **Next**.
3. Review the license agreement, and then click **I Accept**. If you do not accept the terms of the license agreement, we recommend that you do not click **I Accept**.
4. Click **Validate** to validate the Windows installation.
5. On the **Get the latest updates** page of the installation program, clear the **Install the latest updates for Internet Explorer and the Microsoft Windows Malicious Software Removal Tool (recommended)** check box, and then click **Next**.
6. When the installation program finishes, click **Restart Now (Recommended)** to restart the computer.

Scenario 3 - A blank Web page is displayed when you start Internet Explorer 7. Additionally, you encounter the below error message:

"Line 56
Char:2
Error: Element not found
Code: 0
[URL:http://runonce.msn.com/runonce2.aspx](http://runonce.msn.com/runonce2.aspx)"

Solution:

Create and run a Skiprunonce.reg file for each user account that experiences the problem. To do so, follow the below steps:

1. Open Notepad
2. Copy and Paste the following text: Windows Registry Editor Version 5.00

```
[HKEY_CURRENT_USER\Software\Microsoft\Internet Explorer\Main]
'RunOnceHasShown'=dword:00000001
'RunOnceComplete'=dword:00000001
```

3. Save the file as **iYogi.Reg** and save it at the desktop
4. Double click iYogi.Reg file
5. Click **Yes**, on confirmation message
6. Restart the Computer.

Scenario 4 - Error while upgrading from IE 7 to IE 8

"All add-ons are disabled every time you start Internet Explorer"

Solution:

1. In Internet Explorer, click **Tools**, and then click **Internet Options**.
2. Click the **Advanced** tab, and then click **Reset**. Follow any on-screen directions.
3. Close and re-open Internet Explorer.

Scenario 5 - Internet Explorer 8 flashes and closes immediately when you try to start it

Cause: Some settings in Internet Explorer 7 that were not working correctly

Solution:

1. Uninstall Internet Explorer 8.
2. Restart your computer, and then open Internet Explorer 7.
3. In Internet Explorer, click **Tools**, and then click **Internet Options**.
4. Click the **Advanced** tab, and then click **Reset**. Follow any on-screen directions.
5. Close Internet Explorer 7.
6. Reinstall Internet Explorer 8.

Scenario 6 - There are no options under Settings on the Advance Tab of Internet Explorer7

Cause: Some entries in the following subkey are missing:

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Internet Explorer\AdvancedOptions

Solution:

1. Run regsvr32 /n /i inetctl.cpl in the command prompt.
2. Restart the Computer



Check Your Understanding

1. What all features can you control through the security tab in IE 7?

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2. What steps would you follow to rollback IE 7 to IE 6?
3. What steps would you follow if see IE 8 flashes and closes the moment you try to start it?

Phishing Filter

The Microsoft Phishing Filter in Windows Internet Explorer 7 uses an online service that continues to be updated with industry information about fraudulent websites. This service warns you about both known and suspected fraudulent sites.

The Phishing Filter combines a local (client side) system scanning for suspicious website characteristics with an online service. This opt-in feature uses two 'checks' to help protect users from phishing scams:

- It analyzes websites users want to visit by checking those sites for characteristics common to phishing sites.
- It sends the website address to an online service run by Microsoft to be checked against a list of reported and known phishing sites.



Tabbed Browsing

Tabbed browsing, also known as Tabbed Document Interface (TDI), is a recently implemented feature in IE 7 to effectively contain multiple pages or documents in a single window. Each item occupies the browser's entire viewing area when displayed. Tabs facilitate navigation among the items.

To enable the tabs within IE7 window, follow the below steps:

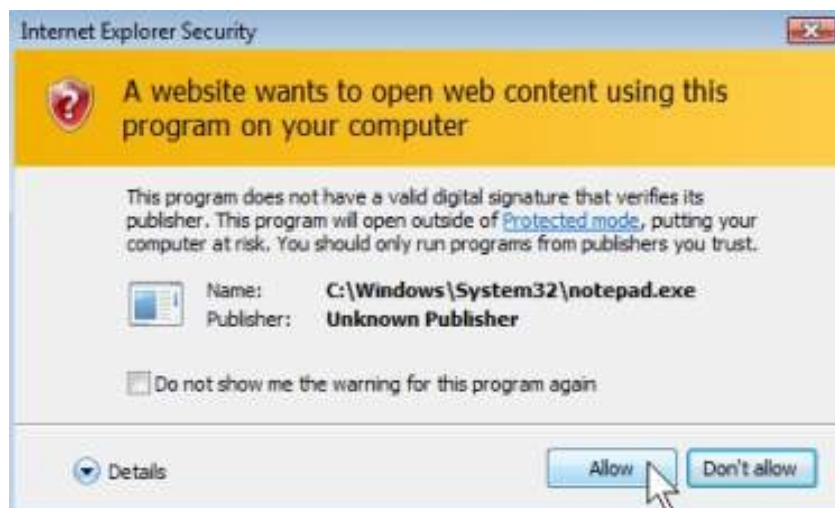
1. Launch IE7.
2. Click on **Tools** then select **Internet Options**.
3. Click on **General** tab.
4. Locate the **Tabs** section and then click the **Settings** button.
5. Check **Enable Tabbed Browsing**.
6. Click **OK**.



Protected Mode

Internet Explorer Protected Mode, available when running Internet Explorer 7 in Windows Vista, provides security and data protection for Windows users.

Protected Mode helps keep hackers from taking over your browser, damaging your system and installing software. Internet Explorer Protected Mode helps protect users and their systems from malicious downloads by restricting where files can be saved without the users consent.





Check Your Understanding

1. What is the functionality of Phishing Filter?
2. How do you enable tabbed browsing in IE 7?
3. How is the Protected Mode feature different from Phishing Filter in Windows Vista?

Day 5: Network and Sharing

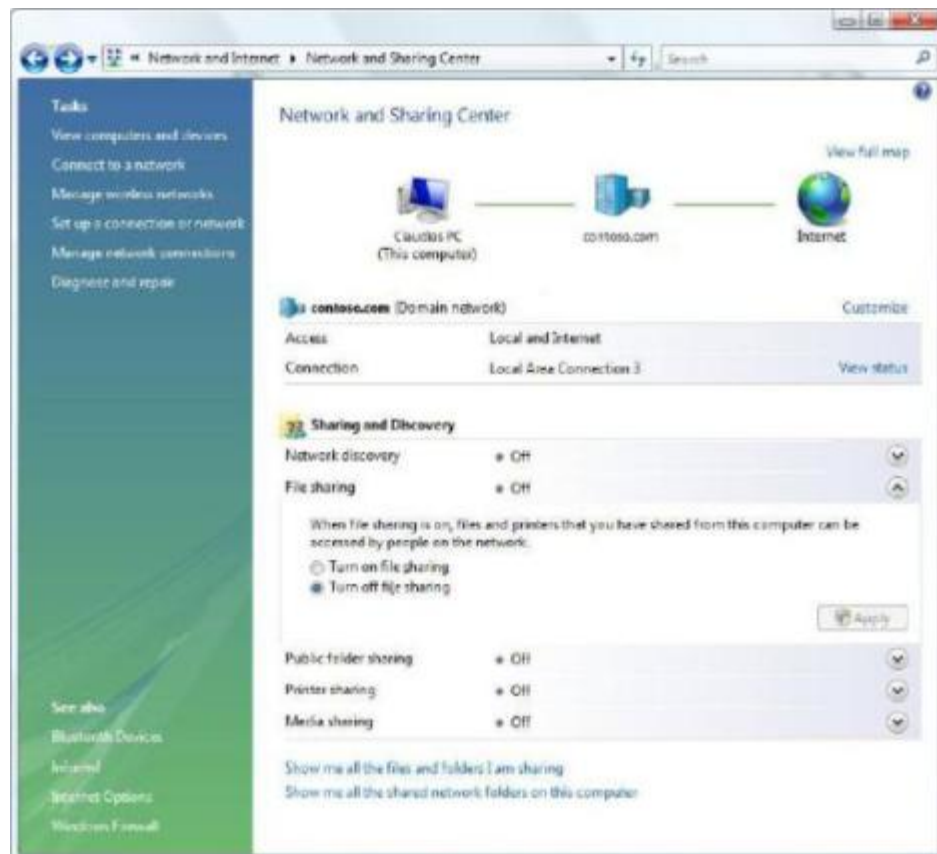
Module Objectives:

By the end of this module, you will understand:

- Network and Sharing Center
- File and Printer Sharing
- Diagnose and Repair

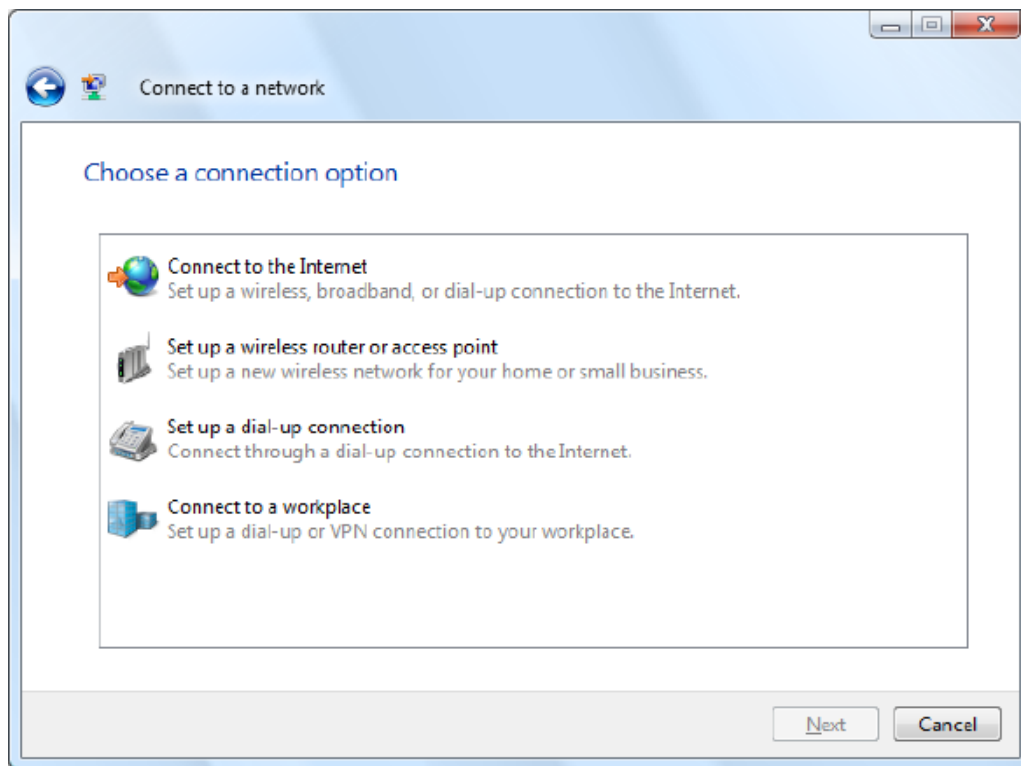
Network and Sharing Center

The Network and Sharing Center in Windows Vista operating system is a place where you can check your connection status, view your network visually, and troubleshoot connection problems.



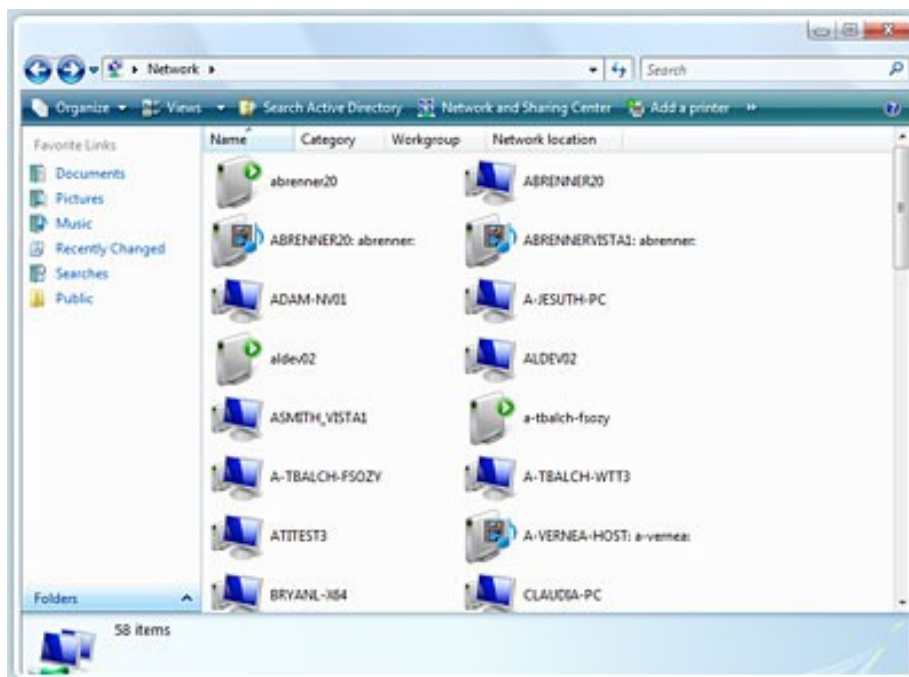
Connectivity

Windows Vista streamlines the process of connecting to networks and enables you to connect to any type of network — local wireless networks, corporate networks through a virtual private network (VPN), a remote access server (RAS), or a dial-up connection. You can view these connectivity options from the Start menu.



Network Explorer

You can browse content on any connected computer and device, just as you'd browse folders on your PC. You can also print to any connected printer. The Network Explorer in Windows Vista presents a view of all computers, devices, and printers on a network (including those not yet fully configured for the network).

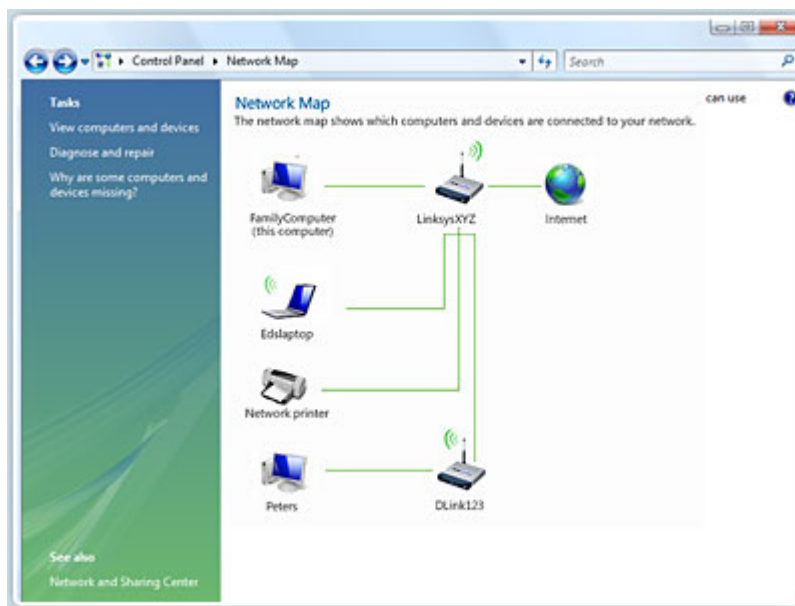


Check Your Understanding

1. Describe the process of connectivity in Windows Vista.
2. What is a Network Explorer?

Network Map

When you have multiple wired and wireless computers and devices connected to a network, it can be difficult to understand how everything is connected. Windows Vista provides a new feature called the Network Map, which shows an easy-to-understand graphical view of everything on the network and how it is all connected. This helps you optimize your network for the best performance and easily locate any problems.



Network Setup

The Network Setup Wizard identifies supported network devices, and the connections it forges are more secure. You can also enable file and printers sharing from the Network Setup Wizard so you can share documents, pictures, music, and other files across your network. With Windows Connect Now you can save network settings to a portable universal serial bus (USB) flash drive. Insert a USB flash drive into a PC or device, and it automatically reads the data and readies itself to join the network.



Network Awareness

A feature called Network Awareness notifies supported applications of changes in a PC's network connectivity. As you switch between different networks, programs that support Network Awareness can modify your PC settings for each one.

Network Locations

Windows Vista enables users to specify the type of network to which they're connecting when they configure a new network connection. The available options include the following:

- **Home or Work:** This option enables standard file sharing and network discovery functionality. It is assumed that only known authorized computers and users are able to connect to the network, so the risk of misuse is lower.
- **Public Place:** In public locations, a large number of different types of users are able to connect to the network. In these situations, it is important to limit network access to the computer. When you configure a new connection for a public location, Windows Vista disables many settings by default, and its focus is on limited access to other resources.



Check Your Understanding

1. What is the difference between a Network Map and a Network Setup?
2. What all Network locations can Windows Vista users configure to?

Accessing Network and Sharing Center on Windows Vista

To start Network and Sharing Center in Windows Vista, follow the below steps:

1. Open **Control Panel**.
2. Click **Network and Internet**.
3. Click **Network and Sharing Center**.
4. When there is a problem with the network, Vista represents it graphically identifying the problem
5. Just click on the icons for Vista to diagnose the problem and recommend some solutions.

File and Printer Sharing in Windows Vista

Feature	Windows XP	Windows Vista
Default workgroup name	MSHOME in Windows XP Home Edition; WORKGROUP in all other versions	WORKGROUP
Shared folder name	Shared Documents	Public
Simple file sharing	Allowed by default	Not allowed by default—access to shared folders, including the Public folder (if shared), requires a user name and password
Detection and access to computers on the network	Only detects and accesses computers in the same workgroup	Detects and accesses all computers on the network, no matter which operating system they're running or which workgroup they belong to
Place to change settings and preferences	My Network Places	Network folder
Network controls	In various places throughout the operating system	Mostly in Network and Sharing Center

Sharing Files/Folders in Windows Vista

Process of file sharing in Windows Vista:

1. Go to **Start** and right-click on **Network** and then click **Properties**.
2. **Network and Sharing Center** window will appear. Click **Manage network connections** on the left panel.
3. Network Connections window will appear. Right click **Local Area Connection** and select **Properties**.
4. A new Window **Local Area Connection Properties** will appear. Select **Internet Protocol Version 4 (TCP/IPv4)** option and click on **Properties**.
5. Check the network name in the **Network & Sharing Center** and then enable **File and printer sharing**.
6. Go to the folder that contains the files you would like to share, right click that folder and click on **Share...**
7. The next window will tell you that your folder is shared. Click **Done** to close the window.

Printer Sharing options are:

- **Share This Printer:** This check box determines whether the printer is available for connection from remote computers.
- **Share Name:** This is the name potential network users of the printer see when they browse this computer. It is a good idea to make the printer name descriptive of its location and type.
- **Render This Print Job On Client Computers:** The process of rendering a print job involves converting the actual data that is to be output into a language that the print device can understand. When you select this check box, the rendering process (which can consume significant system resources) is performed on the machine that sends the print job. This option helps reduce the performance impact to the local computer, especially when numerous users access it over the network.
- **Additional Drivers:** For remote computers to be able to send a print job to a device, they must have the appropriate drivers installed. This dialog box allows users optionally to install drivers for other operating system versions on the computer so that they can be automatically installed over the network.

Public Folder Sharing

The simplest method of sharing information on a computer running Windows Vista is through the use of a built-in feature called the Public folder. The Public folder is designed to enable multiple users on the same computer to share files with each other.

Users typically move or copy files that they want to make available into the Public folder. Because files must reside within this folder, one potential drawback is that users must make multiple copies of the information.

There are three main options in this section:

- Turn On Sharing So Anyone With Network Access Can Open Files
- Turn On Sharing So Anyone With Network Access Can Open, Change, And Create Files
- Turn Off Sharing (People Logged On To This Computer Can Still Access This Folder)



Check Your Understanding

1. Is simple file sharing allowed in Windows Vista? If no, what is the alternative that a user has?
2. Describe the option **Render This Print Job On Client Computers** under the printer-sharing category.
3. How can you share a folder with users on a particular network, such that people outside the network cannot view it?

Troubleshooting File and Printer Sharing

Scenario 1 - I can't connect to other computers on my home network, or I can't share files and printers with them.

Causes: Three main causes for the above the above problem are:

1. The folder or printer you are trying to access has not been shared.
2. Network discovery is turned off.
3. Password protected sharing is enabled.

Solution:

1. In case of file or folder not being shared:
 - Enable the sharing process.
 - Set sharing properties on the item itself or move it to the Public folder so that other people can access it.

2. To turn on the Network discovery:
 - Open **Network and Sharing Centre**.
 - If network discovery is off, click the arrow button to expand the section, click **Turn on network discovery**, and then click **Apply**.
3. To turn off the password protected sharing:
 - Open **Network and Sharing Centre**.
 - Under **Sharing and Discovery**, click the arrow button next to **Password protected sharing**.
 - Click **Turn off password protected sharing**, and then click **Apply**.

Scenario 2 - The other computers on my network don't appear on the Network Map.

Causes: Few reasons responsible for the above issue are:

1. The computer is running Windows Vista and is connected to a network that is assigned to the **Public place** network location.
2. The computer is running Windows Vista and the Link Layer Topology Discovery (LLTD) protocol is disabled on the network adapter.
3. **Windows Vista and network discovery** is turned off.

Solution:

1. Change the network location to **Private**.
2. Enable LLTD using below steps:
 - Open **Network Connections**.
 - Right-click the network adapter icon, and then click **Properties**.
 - Select the **Link-Layer Topology Discovery Mapper I/O Driver** and **Link-Layer Topology Discovery Responder** check boxes, and then click OK.
3. Turn on network discovery.

Scenario 3 - A message is displayed, saying that an error occurred during the mapping process.

Causes: Some causes for the above problem could be:

1. A computer or device on the network restarted during the mapping process.
2. Your computer is connected to a wireless network and the wireless signal quality is poor or intermittent.
3. A device on the network, such as a hub or switch, is not working properly or is not compatible with the Link Layer Topology Discovery (LLTD) protocol, which Windows uses to create the map.
4. Responses from other devices on the network are delayed or there is an incompatible router on the network.

Solution:

1. Wait for the computer or device to finish starting up, and then refresh the network map by clicking the Refresh button.
2. Move your computer closer to the wireless router or access point.
3. Disable the device, turn it off, or remove it from your network.
4. Try disabling the router, turning it off, or removing it from your network.

Scenario 4 - I can't share the root of a drive.

Solution: To share the root of a drive, follow these steps:

1. Open **My Computer**.
2. Right-click the drive, and then click **Share**.
3. In the **drive properties** dialog box, click **Advanced Sharing**.
4. In the Advanced Sharing dialog box, select the **Share this folder** check box, type a share name, and then click **OK**.

Network Basic Commands**IPConfig**

The easiest way to check the IP address of a system is to follow the below steps:

1. Click Start and select Run
2. Type CMD and click on OK
3. Type ipconfig /all and press enter key to preview the IP address.

Ping

The ping utility will immediately and effortlessly identify and display connection problems TCP/IP-based networks. Connection problems can be local, restricted, due to the lack of connectivity among computers that are part of the same network, or can be related to external Internet locations.

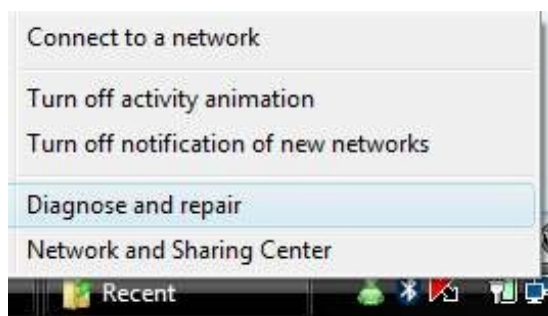
With the help of ping utility, users can check both the integrity of a local network and an Internet connection. Windows Vista will send out Internet Control Message Protocol (ICMP) packets to an address that is specified by the users. In this context, the user can target another computer on the network via the IP or an online location. Windows Vista will display responses from the addresses to the echo datagrams sent initially and will verify if the connection is alive.

A ping command can be run from the Run dialog box or through the command prompt window.

Diagnose and Repair

To use this feature, you will need to follow below steps:

1. Click **Start**, click **Network**.
2. Click **Network and Sharing Center**.
3. Click **Manage Network connections**.
4. Right-click the connection you want to manage.
5. Click **Disable** to disable the connection. This does not delete the connection.
6. Click **Status** to see the status of the connection. You can view activity and bytes sent and received, among other things.
7. Click **Diagnose** to find and resolve problems with the connection.
8. Click **Create Shortcut** to create a shortcut for the connection.
9. Click **Properties** to see the properties for the connection.



Check Your Understanding

1. What might be the cause of an error to pop-up during the mapping process?
2. Describe the function of Ping utility in Windows Vista.
3. What steps would you follow to use the Diagnose and Repair utility in Windows Vista?

Troubleshooting Network Problems in Windows Vista:

Scenario 1 - I get disconnected from my network periodically.

Solution: Windows might be turning off your network adapter to save power. Turn off the power-saving option in the network adapter's properties (wired network adapters only):

1. Open Network Connections.
2. Right-click the connection and click **Properties**.
3. On the **Networking** tab, click **Configure**.
4. On the **Power Management** tab, clear the **Allow the computer to turn off this device to save power** check box, and then click **OK**.

Scenario 2 - I can't connect to my workplace network from home (or another location).

Solution:

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1. Type VPN Server name
2. Turn-on the modem.
3. Make sure you have domain permissions.
4. Disable Winsock proxy client.

Scenario 3 – Computer does not support encryption.

Error code 741

Solution:

1. Open **Network and Sharing Centre**.
2. Click **Connect to a network**.
3. Right-click the **VPN connection** and then click **Properties**.
4. Click the **Security** tab, click **Advanced** (custom settings), and then click **Settings**.
5. In the **Advanced Security Settings** dialog box, under **Data encryption**, select **Maximum strength encryption** (disconnect if server declines), and then click **OK** twice.
6. Click **Connect to try connecting again**.

Scenario 4 - I don't know how to set up an incoming connection.

Solution:

1. Open **Network Connections**.
2. If you don't see the **File** menu, press ALT.
3. Click **File**, and then click **New Incoming Connection**.

Scenario 5 – My network connection is too slow.

Solution:

1. Use latest driver or network adapter.
2. SP1 fixes the network slowness problem that occurs during music or video playback.
3. Disable TCP autotuning.
4. Make sure that the capacities of the router and the network adapter are compatible.
5. Modify the flow-control if using wired connection.



Check Your Understanding

1. How would you solve the problem of getting disconnected from a network repeatedly?
2. What would you do if the computer does not support encryption and shows you the error 741?

Week 4:

Week Objectives:

By the end of this week, you will learn:

Day 1: Windows 7 Overview

- Different Editions of Win 7
- Features comparison between Win 7 Editions
- New & improved features of Win 7
- System Requirements of Win 7
- Clean Installation & Activation

Day 2: Windows 7 Continued

- Upgrading Windows Vista to Win 7
- Upgrade Advisor & upgrade paths for Win 7
- Window Compatibility Report
- Upgrade Installation Process
- Migrating Files & Settings to Windows 7 Computer
- Windows Easy Transfer
- User State Migration Tool (USMT)

Day 3: Parallel & Repair Installation

- Windows 7 Parallel Installation
- Windows 7 Repair Install
- Windows 7 Boot Process
- Windows Recovery Environment (Win RE)
- System Image Recovery
- Troubleshooting Windows 7 Issues & Errors

Day 4: Internet Explorer 8

- Configuring IE 8
- Uninstalling IE 8
- Troubleshooting IE 8 issues

Day 5: Managing Networks

- Connecting to a Network
- Network & Sharing
- Setting up a HomeGroup
- Difference between Domain, Workgroup & HomeGroup
- File & Printer Sharing
- Connecting to Wireless Network
- Troubleshooting Network Issues

Windows 7 top 20 Issues

Day 1: Windows 7 Overview

Module Objectives:

By the end of this day, you will understand:

- Introduction to Windows 7
- Different editions and comparison
- New features and Troubleshooting
- Discuss Minimum system requirements for Clean Installation
- Discuss Clean Installation process of Windows 7
- Discuss Windows Activation

Windows 7 Overview

Windows 7 is a version of Microsoft Windows, a series of operating systems produced by Microsoft for use on personal computers, including home and business desktops, laptops, netbooks, tablet PCs, and media center PCs.

Windows 7 Editions

- **Windows 7 Starter:** Small PC consumers edition.
- **Windows 7 Home Basic:** Designed to access Internet and basic applications.
- **Windows 7 Professional:** Designed for small business users with networking, backup, and security needs and multiple PCs or servers.
- **Windows 7 Enterprise:** Provides advanced data protection and information access for businesses that use IT as a strategy asset.
- **Windows 7 Ultimate:** Designer for technical experts who want all Windows 7 features, without a Volume License agreement.
- **Windows 7 Home Premium:** Provides full functionality on the latest hardware, easy ways to connect, and a visually rich environment- Designed for home users.

Feature Comparison of Windows 7 Editions

Windows 7 editions differ in their features. The below table gives a complete description and comparison between different editions of Windows 7:

Features	Starter	Home Basic	Home Premium	Professional	Enterprise	Ultimate
Maximum physical memory (64-bit mode)	N/A	8 GB	16 GB	192 GB	192 GB	192 GB
32-bit and 64-bit versions	32-bit only	Both (64-bit disc not included)	Both	Both	Both	Both
Maximum physical CPUs supported	1	1	2	2	2	2
Backup and Restore Center	Cannot back up to network	Cannot back up to network	Cannot back up to network	Yes	Yes	Yes
Remote Desktop (Client and Host)	Client only	Client only	Client only	Yes	Yes	Yes
Home Group (create and join)	Join only	Join only	Yes	Yes	Yes	Yes
Multiple monitors	No	Yes	Yes	Yes	Yes	Yes
Fast user switching	No	Yes	Yes	Yes	Yes	Yes
Desktop Wallpaper Changeable	No	Yes	Yes	Yes	Yes	Yes
Desktop Window Manager	No	Yes	Yes	Yes	Yes	Yes

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Windows Mobility Center	No	Yes	Yes	Yes	Yes	Yes
Multi-Touch	No	No	Yes	Yes	Yes	Yes
Premium Games Included	No	No	Yes	Disabled by default	Disabled by default	Yes
Windows Media Center	No	No	Yes	Yes	Yes	Yes
Windows Media Player Remote Media Experience	No	No	Yes	Yes	Yes	Yes
Dynamic Disks	No	No	No	Yes	Yes	Yes
Encrypting File System	No	No	No	Yes	Yes	Yes
Location Aware Printing	No	No	No	Yes	Yes	Yes
Network printing	No	Yes	Yes	Yes	Yes	Yes
Internet connection sharing	No	Yes	Yes	Yes	Yes	Yes
Presentation Mode	No	No	No	Yes	Yes	Yes
Group Policy	No	No	No	Yes	Yes	Yes
Offline Files and Folder redirection	No	No	No	Yes	Yes	Yes
Windows Server domain joining	No	No	No	Yes	Yes	Yes
Windows XP Mode	No	No	No	Yes	Yes	Yes
Software Restriction Policies	No	No	No	Yes	Yes	Yes
Aero glass remoting	No	No	No	No	Yes	Yes
Windows Media Player multimedia redirection	No	No	No	No	Yes	Yes
Audio recording over Terminal Services	No	No	No	No	Yes	Yes
Multi-display Terminal Services	No	No	No	No	Yes	Yes
Enterprise Search Scopes	No	No	No	No	Yes	Yes
Federated Search	No	No	No	No	Yes	Yes
AppLocker	No	No	No	Create Policies, But Cannot Enforce	Create and Enforce Policies	Create and Enforce Policies
BitLocker Drive Encryption	No	No	No	No	Yes	Yes
BranchCache Distributed Cache	No	No	No	No	Yes	Yes
DirectAccess	No	No	No	No	Yes	Yes
Subsystem for Unix-based Applications	No	No	No	No	Yes	Yes
Multilingual User Interface Pack	No	No	No	Yes, purchased separately	Yes	Yes
Virtual Desktop Infrastructure (VDI) Enhancements	No	No	No	No	Yes	Yes
Virtual Hard Disk Booting	No	No	No	No	Yes	Yes



Check Your Understanding

1. List all the six editions available in Windows 7.
2. List three Windows 7 editions that provide remote desktop support to client only.
3. List two Windows 7 editions in which premium games are included.

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4. Which Windows 7 edition allows virtual hard disk booting.

New and Improved Features to Windows 7

DirectX 11

Windows 7 helps you stay right on top of your game, with the best possible visual effects. With DirectX 11, your warp-speed races and mind-bending, inter-galactic feuds can look incredible. With high-end graphics hardware, you'll also get an unprecedented visual experience for your non-gaming applications. DirectX 11 features include:

- **Tessellation** – Tessellation is implemented on the GPU to calculate a smoother curved surface resulting in more graphically detailed images, including more lifelike characters in the gaming worlds that you explore.
- **Multi-Threading** – The ability to scale across multi-core CPUs will enable developers to take greater advantage of the power within multi-core CPUs. This results in faster framerates for games, while still supporting the increased visual detailing.
- **DirectCompute** – Developers can utilize the power of discrete graphics cards to accelerate both gaming and non-gaming applications. This improves graphics, while also enabling players to accelerate everyday tasks, like video editing, on their Windows 7 PC.

Gadgets

Windows 7 improves the Gadget feature by making gadgets easy to position anywhere on the desktop and simple to resize. If you like to keep your gadgets at the edges of your screen where they have traditionally resided, they'll snap right into place as if they were magnets. Place gadgets where you want them.

Play To

Play To, new in Windows 7, makes it easy to use your home audio-video system and other networked media devices to play your music, watch videos, and display photos that reside on your PC. Just right-click the tracks you'd like to hear and select **Play To** — now you're hearing what you want, where you want it.

Remote Media Streaming

Windows 7 introduces Remote Media Streaming, which provides easy access to your Windows Media Player 12 library over the Internet. Remote Media Streaming is available only in the Home Premium, Professional, Ultimate, and Enterprise editions of Windows 7.

To use Remote Media Streaming, both computers must be running Windows 7. Turn it on using the new Stream menu in Windows Media Player 12, and then associate both computers with an online ID, such as a Windows Live e-mail address.

Windows Media Center

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Windows Media Center in Windows 7 makes viewing TV, movies, and other media content on your PC easier than ever. The new Electronic Program Guide (EPG) in Windows Media Center brings together both broadcast and Internet TV so you can find all your favorite programs in one place.

Windows Media Player 12

Windows Media Player 12 plays more music and video than ever — including Flip Video and unprotected songs from your iTunes library! Windows Media Player 12 has built-in support for many popular audio and video formats — including 3GP, AAC, AVCHD, MPEG-4, WMV, and WMA. It also supports most AVI, DivX, MOV, and Xvid files.

Mini Player Mode

Windows Media Player has an interesting option that will let you open files in the Mini Player mode instead of the full player window. To set up the Mini Player mode option, select Tools from the Windows Media Player window.

Action Center

Action Center consolidates message traffic from key Windows maintenance and security features, including Windows Defender and User Account Control. If Windows requires your attention, the Action Center icon appears in the taskbar.

Two Categories:

- **Action Center – Security**

In this section, users are presented with all of the needed security information, problems and the options to troubleshoot.

- **Action Center – Maintenance**

In this section, users can find information related to their system maintenance like system backup, windows update etc., It also provides the ability to check for solutions.

Power Management

Windows 7 runs with fewer background activities, so your PC processor does not work as hard, and draws less power. Other innovations include less power-hungry DVD playback (handy on long flights), automatic screen dimming, powering off unused ports, and a more accurate battery-life indicator. So you will be less likely to be surprised by a dead battery.

ReadyBoost

With ReadyBoost in Windows 7, you can use multiple flash devices — such as USB keys, Secure Digital cards, and internal flash devices — at the same time.

Windows Experience Index

In Windows 7, the Windows Experience Index has been updated to reflect advances in processor, graphics, and hard disk technology. Maximum scores should generally be the same or higher for a computer system after upgrading from Windows Vista to Windows 7.

Aero Shake

Suppose you have 5-7 windows open on the screen and you wish to work with only one particular application, let's say MS Paint, then you just need to bring the cursor on the paint window and then press and hold the left button of the mouse and shake the mouse. This action will hide all the other windows except MS Paint window. And if you need to view other windows again then repeat the same process and all the hidden windows appear again.

Jump Lists

Jump list provide quick application specific access by linking to functions and folders that are often used. These are menu options available from right-clicking any of the icons on the taskbar or by holding the left mouse button and sliding up on an icon. Each application will have unique jump lists which will correspond to the features unique to the application whether it be recent files opened or common tasks.

Location Aware Printing

The new feature, included in the Professional, Ultimate, and Enterprise editions of Windows 7, works like this: Whenever you print, Windows 7 remembers which network and printer you're using. Next time you return to that spot, Windows automatically switches the default printer to match the one you last used. You can also manually pair printers and networks.

Remote Desktop Connection

Remote Desktop connects two computers over a network or the Internet. Once connected, you'll see the remote computer's desktop as if you were sitting right in front of it, and have access to all its programs and files. This feature is included with all editions of Windows 7, but you can only connect to computers running the Professional, Ultimate, or Enterprise editions.

Snap

Snap is a quick new way to resize open windows, simply by dragging them to the edges of your screen. Depending on where you drag a window, you can make it expand vertically,

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take up the entire screen, or appear side-by-side with another window. It helps you to read, organize and compare windows.

Snipping Tool

Snipping Tool captures a screen shot of anything on your desktop, like a picture or a section of webpage. Snip a whole window, a rectangular section of the screen, or draw a freehand outline with your mouse or tablet pen (or your finger, if you are using a PC with a touch screen). Then you can annotate, save, or e-mail the image using buttons right in the Snipping Tool window. Snipping Tool is available only in the Home Premium, Professional, and Ultimate editions of Windows 7.

Sticky Notes

In Windows 7, you can format a note's text, change its color with a click, and speedily resize, collapse, and flip through notes. If you have a Tablet PC or a touch screen, Windows 7 Sticky Notes support pen and touch input, too—you can even switch between different input methods within the space of a single note. Sticky Notes is available only in the Home Premium, Professional, and Ultimate editions of Windows 7.

Windows Fax and Scan

When your PC is equipped with a fax modem (or connected to a fax server), it can send and receive documents just like a standalone device. Windows Fax and Scan even includes a handy tool for designing custom cover pages. By attaching a scanner to your PC, you can also use Windows Fax and Scan to create digital copies of documents and photos.

Windows Live Essentials

Windows Live Essentials (previously Windows Live Installer) is a suite of freeware applications by Microsoft, which aims to offer integrated and bundled e-mail, instant messaging, photo-sharing, blog publishing, security services and other Windows Live entities.

Windows Search

In Windows 7, you can find more things in more place—and do it faster. Start typing into the Start menu search box and you'll instantly see a list of relevant documents, pictures, music, and e-mail on your PC. Results are now grouped by category and contain highlighted keywords and text snippets to make them easier to scan.

Improved Windows Taskbar

The taskbar is one of the most familiar aspects of Windows. When you open files and programs, their icons show up on the taskbar so you can switch between them. In Windows

7, the taskbar lets you decide where each program goes so you know precisely where to click. When you install a new program, its icon is temporarily placed at the bottom of the Start menu so you can drag it to the taskbar for convenient access in the future.

Windows Touch

In Windows 7, you can have enriched Windows experience with touch, making touch a first-class citizen as another way to interact with your PC alongside the mouse and keyboard.. With the Windows 7 Multitouch Platform, you have the freedom to directly interact with your computer.

Windows XP Mode

The new Windows XP Mode lets you run older Windows XP business software right on your Windows 7 desktop. Designed primarily with small- and medium-sized businesses in mind, Windows XP Mode comes as a separate download and works only with Windows 7 Professional and Ultimate.

WordPad

A new ribbon—the strip across the top of the window that shows what a program can do—makes WordPad easier to use, with choices displayed out in the open rather than in menus. WordPad also has more formatting options, such as highlighting, bullets, line breaks, and new colors. With all of this—plus picture insertion, improved print preview, and zoom—WordPad is a powerful tool for creating basic word-processing documents.

Backup and Restore

Backup and Restore—improved for Windows 7—creates safety copies of your most important personal files, so you're always prepared for the worst. Let Windows choose what to back up, or pick individual folders, libraries, and drives yourself. Windows can back up files on whatever schedule you choose—just set it and forget it.

BitLocker

Improved for Windows 7 and available in the Ultimate and Enterprise editions, BitLocker helps keep everything from documents to passwords safer by encrypting the entire drive that Windows and your data reside on. Once BitLocker is turned on, any file you save on that drive is encrypted automatically.

Parental Controls

In Windows 7, Parental Controls helps you limit how much computer time children have, as well as which programs and games they can use (and perhaps more importantly, when). With the Parental Controls in Windows Media Center, you can also block access to objectionable TV shows and movies.

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Windows Defender

Windows Defender is software that helps protect your computer against pop-ups, slow performance, and security threats caused by spyware and other unwanted software.

Windows Firewall

Windows Firewall can help protect your PC from hackers and malicious software. In Windows 7, it is still powerful. For example, now you can fine-tune the protection and notifications you want for each of your network profiles — Home, Work, and Public. When you are connected to a public network like a library or a coffee shop, you may want to block all incoming connections. At home or work, this might be overkill. Whatever level of protection you choose for your profiles, you will be able to switch between them with ease.

Home Media Streaming

If you're like most people, your home PC is the central place where you store and enjoy your photo, music, and video collections. But you probably also often take your laptop to other locations such as hotels, airports, or coffee shops.

Domain Join

A domain is a type of computer network commonly found in the workplace. (In technical-speak, it's a collection of computers that's centrally administered and operates under common rules.)

The Windows 7 Professional and Ultimate editions are designed to join a domain quickly and more securely. Just follow the easy-to-use wizard, which prompts you to enter your network credentials.

Home Group

This new feature of Windows 7 allows you to configure your home network, doing file and printer sharing, password protection and troubleshooting your network. You can find Home Group icon in Control Panel. Even you can define the advance sharing options to make your network safe and secure.

Windows Connect Now

Windows Connect Now makes it easier to set up a wireless network at home or work. The first time you connect to a compatible Wi-Fi router, Windows will walk you through all the necessary setup steps — including naming your network and turning on the router's security features.

VHD Boot

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Boot from VHD is a new technique for installing and maintaining operating system environments. Unlike virtual machines, the operating system that is running from a “boot from VHD” environment is using the actual hardware instead of emulated hardware. This means a developer could easily use WPF and the full GPU processing power of a high end graphics card.

User Account Control

User Account Control (UAC) helps defend your PC against hackers and malicious software. Any time a program wants to make a major change to your computer, UAC lets you know and asks for permission.

Msconfig

Msconfig (System Configuration) utility can be used to customize startup settings such as disabling startup items, services, performing clean boot etc.

Event Viewer

The Event Viewer is a tool that displays detailed information about significant events on your computer. It is used for troubleshooting problems with Windows and errors with other programs.



Check Your Understanding

1. Explain the functions of Windows 7 features:

- Windows Defender
- Windows Firewall
- Home Media Streaming
- Domain Join
- BitLocker
- Windows Touch
- Sticky Notes
- Snipping Tool
- Aero Shake
- Msconfig
- DirectX11
- VHD Boot

System Requirements to Install Windows 7

Basis-Processor (32-bit and 64-bit)

Minimum Hardware Requirements for Windows 7		
Architecture	32-bit	64-bit
Processor speed	1 GHz processor	
Memory (RAM)	1 GB of RAM	2 GB of RAM
Graphics card	Support for DirectX 9 graphics device with 128MB of graphics memory (for Windows Aero)	
HDD free space	16 GB of available disk space	20 GB of available disk space
Optical drive	DVD drive (only to install from DVD/CD Media)	

Basis- Windows 7 Editions

Hardware Requirements	Starter Edition	Home Basic Edition	Home Premium/Professional/Enterprise/Ultimate Edition
CPU	800 MHz	1 GHz	1 GHz
RAM	512 MB	512 MB	1 GB
Graphics Processing Unit (GPU)	SVGA	DirectX 9	Aero Capable
Video RAM			128 MB
HDD	20 GB	20 GB	40 GB
HDD free space	15 GB	15 GB	15 GB
Optical Drive	CD	DVD	DVD



Check Your Understanding

1. What should be the minimum CPU and RAM speed if you want to install Windows 7 Home Premium edition?
2. What is the recommended hard drive space to install Windows 7 Ultimate edition?

Clean Installation Process

1. Insert the Windows 7 installation disc (CD/DVD) in the drive and restart the computer. Ensure that in BIOS first device option is CD/DVD drive. Once you click Boot from CD, it will start loading the necessary files to install Windows 7.
2. After few seconds, it will prompt you to select **language, time and currency** and **keyboard input method**. Select the appropriate inputs and click **Next**.
3. Now, it will display a new window, here you can click **Install now** button to continue the process.
4. Check the box to **accept the license agreement** and then click **Next** button.
5. Now it prompts you to select the installation type whether you wish to upgrade the current Vista operating system or you wish to perform a clean or new installation. Click **custom (Advance) option**.
6. Once you click custom (advance) option, it will display a new window. Click **Drive Options (Advanced)** to view more options like format, new, extend, delete partition etc.
7. Click **Next** button to continue the installation process.
8. Click **Next** button after typing the username and the computer name.
9. Type the **Windows Product key** and then click **Next** button.
10. Select the **time zone of your place, date, time** and then click **Next** button.
11. It will prompt you to select the computer location like it's connected to home network or work network or public network.
12. It displays a welcome message and configures the desktop.
13. Finally, it will display the desktop screen.

Activating Windows 7

If you don't activate your Windows 7 within a given period of time then it may disable some of the important features showing you regular message notifications such as "*version of Windows is Not Genuine, you may have been a victim of Software Piracy*" and can also remove your wallpaper making your desktop black showing a watermark on bottom left mentioning Build 7600 "*This copy is not genuine*".

The steps to activate Windows 7 are as follows:

1. If you bought a separate DVD of Windows 7 then search for its **25 digit Product Key** serial inside the box. If you are reinstalling your Windows on your laptop which already came with Windows 7 (OEM) then look for product serial key sticker on its back.
2. Once you've found your Product Key, press **Windows + Pause/Break** button together or just open **System Properties** by going to **Control Panel -> System and Security -> System**. It'll open up System Properties Window.
3. Just look at the bottom of the Window for a link to activate Windows. The link will show you the number of days left to activate Windows. Just click on that and it'll open another Window asking if you want to **Activate Windows Online** or **Ask me later**.
4. Click on the first option. It'll open up another Window asking you to enter your Product Key. Enter your 25 digit Product key serial you got from step 1 and press Enter.
5. It'll show you another Window with message **Activating Windows** and **The product key is being verified**. Once it is done verifying, another Window will show you message **Activation was successful**. Just close the Window and you are done!



Check Your Understanding

1. What will be the symptoms if you do not activate Windows 7 in the given interval of time?
2. Where can you find the product key to install Windows 7?

Day 2: Upgrade Installation and Migration to Windows 7

Module Objectives:

By the end of this module, you will understand:

- Discuss upgrade paths for Windows 7
- Discuss pre-requisites for the upgrade
- Discuss Upgrade Advisor
- Discuss upgrade process to Windows 7
- Discuss Migration to Windows 7

Upgrading to Windows 7 from Windows Vista

Depending on your hardware and your current edition of Windows Vista, you can use the **In-Place Upgrade** option during Windows 7 installation to upgrade from Windows Vista or Windows XP to a corresponding or higher edition of Windows 7.

Upgrade Advisor

Windows 7 upgrade advisor scans your PC for potential issues with your hardware, devices, and installed programs, and recommends what to do before you upgrade.

In general, if your PC can run Windows Vista, it can run Windows 7. But if you're not running Windows Vista, or are just not sure if your system is ready to run Windows 7, there's an easy way to check. Just use the Windows 7 Upgrade Advisor. You'll get a report telling you if your PC can run Windows 7 and if there are any known compatibility issues with your programs or hardware, like printers or scanners. If there's a fix, you'll get suggestions for next steps. For example, it will let you know if you need an updated driver for your printer and show you where to get it.

How to Download and run Upgrade Advisor?

- Insert the Windows 7 installation disc, on the installation wizard screen you will find an option to check the compatibility online, for which your system should be connected to Internet.
OR
- You can download Upgrade advisor from the Microsoft website and then run the executable file to view the compatibility report. The following steps will guide you to download and run the upgrade advisor.

Steps to use Upgrade Advisor:






















1. Click **Compatibility Check Online** option on the installation wizard screen of Windows 7.
2. Once you click **Check Compatibility Online** option on the installation wizard screen, it will display the Microsoft webpage. Here you can download Windows 7 Upgrade Advisor.
OR
You can use the following link to download it and click Download the Windows 7 Upgrade Advisor Beta option.
<http://www.microsoft.com/downloads/details.aspx?familyid=1B544E90-7659-4BD9-9E51-2497C146AF15&displaylang=en>
3. Click **Download** button and save the file at the desktop.
4. Double click **Windows 7 Upgrade Advisor.msi** to run the compatibility checker. Click **Next** button to continue the process.
5. Check the box to accept the license terms and then click **Next** button.
6. Check the **Create a shortcut on my desktop box** and then click **Install** button.
7. Wait till the installation process gets complete.

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8. After the installation is done, double click the shortcut at the desktop and then click **Start Check** button on the upgrade advisor screen. Once it scans your system, a detailed report is generated

Windows Compatibility Center

The Windows Compatibility Center is a single location where you can quickly and easily verify that your existing devices and applications will work — and double-check to make sure that your new purchases work too. The Compatibility Center is updated frequently so you can find the most current software and drivers to make things run perfectly. You can even share feedback with Microsoft to help improve the Compatibility.

	XFX GeForce 8800 GTS Extreme 320MB Graphics Card PV-T80G-GHE9 XFX		 32-bit	Compatible Learn more
	Asus Nvidia GeForce 8800 GTS 512MB Graphics Card EN8800GTGHTDP512M ASUS		 32-bit	Compatible Learn more
	Asus Nvidia GeForce 7600 GT 256MB Graphics Card EN7600GT2DHT ASUS		 32-bit	Compatible Learn more
	XFX GeForce 8800 GTS PCI-e 640MB Graphics Card PV-T80G-THF9 XFX		 32-bit	Compatible Learn more
	Asus Nvidia GeForce 7800 GTX Graphics Card EN7800GTX2DHTV256M ASUS		 32-bit	Compatible Learn more
	MSI N8400GS-TD256H Graphics Card N8400GS-TD256H MSI		 32-bit	Compatible Learn more
	XFX GeForce 8800 GTS 320MB DDR3 Graphics Card PV-T80G-GHF4 XFX		 32-bit	Compatible Learn more

Upgrade Paths for Windows 7

		Windows 7 Home Premium		Windows 7 Professional		Windows 7 Ultimate	
Upgrade From		32-bit	64-bit	32-bit	64-bit	32-bit	64-bit
Windows Vista Starter	32-bit	Custom Install	Custom Install	Custom Install	Custom Install	Custom Install	Custom Install
	64-bit	Custom Install	Custom Install	Custom Install	Custom Install	Custom Install	Custom Install
Windows Vista Home Basic	32-bit	In-Place Upgrade	Custom Install	Custom Install	Custom Install	In-Place Upgrade	Custom Install
	64-bit	Custom Install	In-Place Upgrade	Custom Install	Custom Install	Custom Install	In-Place Upgrade
Windows Vista Home Premium	32-bit	In-Place Upgrade	Custom Install	Custom Install	Custom Install	In-Place Upgrade	Custom Install
	64-bit	Custom Install	In-Place Upgrade	Custom Install	Custom Install	Custom Install	In-Place Upgrade
Windows Vista Business	32-bit	Custom Install	Custom Install	In-Place Upgrade	Custom Install	In-Place Upgrade	Custom Install
	64-bit	Custom Install	Custom Install	Custom Install	In-Place Upgrade	Custom Install	In-Place Upgrade
Windows Vista Ultimate	32-bit	Custom Install	Custom Install	Custom Install	Custom Install	In-Place Upgrade	Custom Install
	64-bit	Custom Install	Custom Install	Custom Install	Custom Install	Custom Install	In-Place Upgrade



Check Your Understanding

1. Can you perform in-place upgrade from Windows Vista Starter to Windows 7 Home premium?
2. Can you perform in-place upgrade from Windows Vista Business (64-bit) to Windows 7 Home premium?

Windows Compatibility Report

Windows Compatibility Report might appear during the Windows 7 upgrade process if Windows detects issues that might affect the upgrade. The report includes recommended steps to take, and a copy of it is saved to your desktop so you can refer to it later.

Steps to be taken:

Perform the below steps if you encounter Windows compatibility report while upgrading to Windows 7:

1. Uninstall the program(s) and/or Update the driver(s) and/or disconnect the device(s) listed in the report.
2. Restart the upgrade process.

Windows 7 Upgrade Pre-Requisites

Before you begin to upgrade to Windows 7, make sure you perform the following steps:

1. Download and run Windows 7 Upgrade Advisor to check your system whether or not it meets the required system requirements.
2. Go to Windows 7 Compatibility Center to check what works with Windows 7.
3. Make sure your computer is running Windows Vista Service Pack 1 or Service Pack 2.

Upgrade Installation Process

1. Insert your Windows 7 DVD in the optical (CD/DVD) drive. Click **Install Now** option once you see the screen. If you have disabled autorun, open the root of the DVD drive (Windows 7 DVD) and run setup.exe file.
2. Once you run the setup, you will see two options: **Check compatibility online** and **Install Now**. Since you have already verified the system compatibility using Windows 7 upgrade advisor, you can safely click **Install Now** button. The window also contains few other options like, Repair your Computer etc.
3. In the next screen, you will see two options: **Go online to get the latest update for installation** and **Do not get the latest updates for installation**. If you have the latest version of Windows 7, then you will need not to check for updates. You can select **Do not check for updates** if you wish to check for updates post upgrade process.
4. Accept the license agreement (**I accept the license agreement**) and click **Next** to continue the procedure.
5. In the next screen again you will see two options: **Upgrade** and **Custom**. Select **Upgrade** option and click **Next**. After this, follow the instructions as prompted.
6. Once again, Windows will check for the compatibility and will generate the report. If Windows finds any compatibility problems, it will display the problem and will save the report to the desktop. If no incompatibilities are found, Windows 7 Setup will proceed without further interaction. The following checks are performed:

- Supported upgrade path
 - Version and Service Pack level
 - Architecture
 - Edition
 - Language
- Free Memory to perform upgrade data, settings, and program migration
- Free disk space
- Not in Safe Mode
- Check for Folder/Partition Issues
 - Single OS on Windows partition
 - Non-OS folders with reserved names – Users, Program Data, Windows if they are not current system folders.
 - Current Program Files or Users folder is not located on the System Drive or any profile folder is not located in the Profiles Directory
 - Windows is not installed to a VHD file using boot to VHD support (this is a scenario that only applies to Windows 7 reinstall, it does not affect Windows running in a Virtual PC Virtual Machine)
- No restart is pending
- Only one user is currently logged on

Different Setup Logs Created while Upgrading

Phase Name	Description	Log Files
Downlevel	Starting the installation. Copying Setup files to the hard drive, and setting up a boot entry to boot directly to the next phase. As part of this, existing installed drivers are added to the \$Windows.~BT driver store so that hardware support is available in WinPE. Also during this phase, data, programs and settings for migration are identified and online gathering is performed.	\Windows.~BT\Sources\Panther\setup*.log \Windows.~BT\Sources\Panther\PreGatherPnPList.log
WinPE	This phase starts with the Windows Setup boot entry, pointing to WinPE in \$Windows.~BT. The rest of the migration gathering is done in this phase, followed by the application of the generic Windows 7 image from install.wim.	\Windows.~BT\Sources\Panther\setup*.log

Online Configuration	In this step the computer is started in Windows 7 for the first time. Setup first performs a set of specialization actions that make the installation of Windows unique. Drivers for detected hardware are installed, and collected migration data is now reapplied to the system.	\Windows\Panther\setup*.log \Windows\inf\setupapi.*.log \Windows.\~BT\Sources\Panther\PostGatherPnPList.log
Windows Welcome	When setup is finished, you begin using Windows 7 in the Windows Welcome phase, also known as the Out Of Box Experience (OOBE). This is the portion of setup where you set the time zone, choose the configuration for updates and safety features, have a chance to connect to a network, and join a Homegroup if one is found on your network.	\Windows\Panther\UnattendGC\setup*.log \Windows\Logs\CBS.log \Windows\inf\setupapi.*.log



Check Your Understanding

1. What is the full form of OOBE?
2. Under which phase does the Windows Setup boot entry start?
3. What happens in Online Configuration phase?

Renaming Windows Folder

During up-gradation process Windows 7 automatically renames the current windows folder as Windows.old; if you go to C: drive there you will find Windows.old folder; The contents of Windows.old folder are as follows:

- Documents and Settings
- Program Files
- Windows
- Autoexec
- Config.sys

Migrating Files and Settings to Windows 7 Computer

When you use the **Upgrade** option, your files and applications are maintained on the

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computer and do not need to be reinstalled. The **Upgrade** option is available in Windows 7 Setup for some computers running Windows Vista, but it is not available for Windows XP. In such cases, you need to choose **Custom installation** option and must migrate user content that you want to maintain when installing Windows 7 onto any computer running Windows XP.

Migrate means that you save files and settings in a safe location, such as on a USB drive or a network share, prior to installing Windows 7 on your computer. When the installation is complete, you can move the files and settings from the safe location to the computer running Windows 7.

Windows Easy Transfer

To maintain settings when installing Windows 7 on a computer running Windows XP or in some cases, Windows Vista, you must migrate files and settings using a tool, such as, Windows 7 Easy Transfer and then reinstall your software programs.

Windows Easy Transfer (Migwiz.exe) is installed with Windows 7 and is available on the Windows 7 DVD in the Support\Migwiz directory. Additionally, if you are installing Windows 7 on a new computer, you can transfer settings and files from any other computer running Windows Vista or Windows XP by using Windows Easy Transfer. The method that is appropriate depends on the circumstances of the migration.

To migrate profile data with Windows Easy Transfer, you can use any of the following:

- **Easy Transfer Cable** – This is a special cable with USB connectors that you can acquire from hardware vendors.
- **Network** – To use the network migration method, you must have two computers running Windows Easy Transfer connected to the same local area network.
- **External Hard Disk or USB Flash Drive** – You can specify an attached external hard disk or USB flash drive.

Steps to Install and Run Windows Easy Transfer

1. Open Microsoft webpage to download Windows easy transfer tool. You can use the below given link to download the file.
<http://www.microsoft.com/downloads/details.aspx?FamilyID=2b6f1631-973a-45c7-a4ec-4928fa173266&displaylang=en&Hash=LaBreE%2bZ4IiXhIUZJKF%2bpHAI5dYunNCqdNPBOti1epI0NkZE4CoJPurZQVYu6XkoEfARyufKWL8Ru%2fLRCsgHSA%3d%3d>
2. Scroll the webpage downwards and click **Download** button according to the operating system you are using. For 64 bit operating system download tfrcable_x64.exe and for 32 bit operating system download tfrcable_x86.exe respectively;
3. Save the file at the desktop.
4. Double click **tfrcable_x86.exe** to run the installation wizard.

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5. Click **Next** button to continue the installation process.
6. Select **I Agree** option to accept the license agreement and then click **Next** button.
7. Wait till the installation process completes, click **Finish** button to close the installation wizard screen.
8. Now click **Start>All Programs>Windows Easy Transfer** to backup the data and user settings.
9. Now it will display the welcome screen of Windows Easy Transfer, at the bottom part it explains that what type of files and folders can be transferred like User Accounts, Program Settings, Internet Settings, and Email Settings etc. Click **Next** button to continue the process.
10. It will warn you close all the application and programs, if any application is open it will display the list of open programs and will close them once you click **Close All** button.
11. Here you can choose, how you wish to transfer the data like direct transfer by connection a cable between two computers or via network or you wish burn a CD/DVD or transfer the data to flash drive. Click **Use a CD, DVD, or other removable media** option if you wish to transfer the data to an external storage media. In case, when you are transferring the data through a cable, make sure both of the computers (target and source) are connected via a Easy Transfer Cable. However, in case you choose network, option, ensure the connectivity of Internet.
12. After the required media and option is selected, it prompts you to make the data password protected and then click **Next** button to continue the process.
13. Now it prompts you to choose what type of data you wish to transfer. If you click **Advance Options** then it will display a list, here you can check the items you wish to backup or transfer.
14. Now it will create the backup of your data.
15. Click **Close** button to close the transfer wizard. It also contains the instruction how to restore the data.

Restoring Data via Windows Easy Transfer

1. In this scenario the data has been backed up. Now to restore the data in your new computer or to the same computer, first you need to plug back up device in which the data needs to be stored. Now browse the drive and look for a file starting with IMG and the numbers like 00001. This file is related to Windows Easy Transfer with .MIG extension. Double click the file to open the restoration wizard.
2. Now, it will prompt you what type of data you wish to transfer, select the option and then click **Transfer** button. You can use **Advance Options** button to explore extra features related to restoration.
 - If you click **Advance Options**, it will display a new window, here you can select how the user settings you wish to transfer like as same user or to a different user or you wish to create a new user and then transfer the settings to that user account.
 - If you click Create User then it will display a new window and prompt you to type the required information and then click create button to make a new user account.

3. Once you click **Transfer** button after selecting the data, it will transfer the data to the computer.
 - Once the transfer process is complete it will display the message of successful transfer.
4. If you click the option **See what was transferred**, it will display the report, showing the details and types of files transferred to the computer.



Check Your Understanding

1. What are the three ways to migrate data using Windows Easy Transfer?
2. What are the contents of Windows .old folder?

User State Migration Tool (USMT)

User State Migration Tool (USMT) is one another tool to migrate files and settings from one Windows computer to a Windows 7 computer. This is a command line utility program to copy user files and settings from one Microsoft Windows computer to another. It is intended mainly for IT professionals to use in scripted migrations of bigger corporate installations; for general users Windows Easy Transfer is recommended instead. The tool requires connecting two computers via a cable. You can download the USMT tool from the following link:

<http://www.microsoft.com/downloads/details.aspx?familyid=799AB28C-691B-4B36-B7AD-6C604BE4C595&displaylang=en>

The tool includes two command-line options:

- **ScanState** creates an intermediate store that contains the user files and settings from the source computer.
- **LoadState** restores these files and settings to the destination computer.

USMT Components

Component	Explanation
ScanState.exe	<ul style="list-style-type: none"> • Collects the files and settings and creates a store • Scan State compresses the files and stores them as an image file
LoadState.exe	<ul style="list-style-type: none"> • Migrates the files and settings from store to the destination computer • Load State transfers the file to the correct location, deletes the temporary copy, and begins migrating the next file.
Migration .xml files	<ul style="list-style-type: none"> • MigSys.xml, MigApp.xml, MigUser.xml, and any Custom .xml files that you create.
Config.xml	<ul style="list-style-type: none"> • This optional file has a different format than the migration .xml

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	files because it does not contain any migration rules <ul style="list-style-type: none"> • Contains a list of the components that can be migrated.
Downlevel Manifests	<ul style="list-style-type: none"> • Control which operating system and browser settings are migrated • Located in the USMT\dlmanifests folder
USMT internal files	<ul style="list-style-type: none"> • All other .dll, .xml, .dat, .mui, .inf files that are included with USMT are for internal use • You cannot modify these files

Steps to use USMT

The steps to perform the migration using USMT are as follows:

1. On the source computer, use the below command:
Scanstate <path to store output file> /o /c /i:migUser.xml /i:migdocs.xml /i:migapp.xml
2. Install Windows 7 on the destination computer (which can be the same as the source computer)
3. On the destination computer:
Loadstate <path of the USMT.MIG file> /c /lac /lae /i:migUser.xml /i:migdocs.xml /i:migapp.xml
4. Reboot the Windows 7 computer.



Check Your Understanding

1. What is USMT?
2. Which command line option of USMT restores these files and settings to the destination computer?
3. What are the functions of LoadState.exe?
4. What are two functions of Config.xml?

Day 3: Parallel & Repair Installation

Module Objectives:

By the end of this module, you will understand:

- Discuss Parallel Installation process of Windows 7
- Discuss Repair Installation process of Windows 7
- Discuss Installation Issues and Troubleshooting
- Discuss the Boot Process of Windows 7
- Discuss Windows Recovery Environment
- Discuss how to Roll Back Windows 7 Installation
- Discuss Blue Screen Errors
- Discuss Black Screen Errors

Windows 7 Parallel Installation

Windows 7 parallel install installs a second copy of Windows 7 on your PC. A repair install on Windows 7 is one of the last steps you can take to rectify a problem with the operating system. If you need to do parallel installation of Windows 7, then you need to keep following things in mind:

- It requires another drive or partition.
- If you set the same username as the previous install, then you might lose the personal data, such as, data in My Documents etc.
- You need to set a different name of Windows folder other than the default folder of Windows or select another drive or partition.

Steps to perform Windows 7 Parallel Install

1. Boot the computer using Windows 7 CD/DVD.
2. Select **Language, Time, Currency**, and other preference options.
3. Click **Next**, click **Install Now** to start the setup.
4. Accept the License agreement and click **Next**.
5. In **Type of Installation** window, click **Custom (Advanced)** option.
6. Hard drive setup comes up. Select the hard drive partition that Windows doesn't reside on. If it is **Unallocated Space**, click **New to setup the drive**, alternatively just click **Next** to use full available space.
7. If drive/partition is already setup then click **format to erase the drive/partition**, alternatively just click **Next** to leave its contents alone (Although a previous install of Windows will be renamed if present).
8. Now if setting up the drive/partition, choose the amount of space you wish to use, then click **Apply**.
9. Click **Next** to continue the install.
10. Proceed as the setup prompts.

Windows 7 Repair Install

Steps to perform Windows 7 Repair Install:

1. Start the Windows 7 and log on to **Administrator Account**.
2. Disable the 3rd party antivirus, firewall or any such security program. These may interfere with the repair upgrade installation of Windows 7.
3. Load the Windows 7 installation DVD into the DVD drive. Now click on the **Run Setup.exe** option in the **Autoplay** window from within the currently installed Windows 7.
4. Next click **Install Now** button to start the installation.
5. Uncheck the **I want to help make Windows installation better** box. Following this click **Go online to get the latest updates** for installation option.
6. Windows 7 will search online to install any available installation updates.
7. Look for the **I accept the license terms** box and check it. Then click on **Next**.

8. Follow it by clicking on the **Upgrade** option. Now the installation of Windows 7 will begin.
9. After the final restart a blank screen appears.
10. Type in your Windows 7 **product key number**.
11. First uncheck the **Automatically activate Windows when I'm online** box at the bottom. After this click on the **Next** button.
12. Now click on the **Use recommended settings**.
13. Choose your **Time Zone**. Set the **time** and **date** setting and click on the **Next** button.
14. Click on the option for your computer's location to select the correct network location typesetting that has to be applied for the location.
15. Now Windows 7 prepares your desktop to startup.

Troubleshooting Installation Issues

You might encounter a number of problems before or after installing/upgrading Windows 7. Some of the common problems along with the respective solutions have been discussed below:

Problem 1: Windows Vista upgrade to Windows 7 hangs at 62%.

Solution: Follow the below mentioned steps to solve this issue:

1. Reboot, and your PC should roll back to Windows Vista. You can then open the setup log file **\\$WINDOWS.~BT\Sources\Panther\setupact.log** to view what happened.
2. The Iphlpsvc service might have stopped responding. So adding an environment variable to ignore will fix the problem.
3. Browse the setup log for other clues. And you might also try to boot and install from the Windows 7 disc, if possible, as that reduces the chance of any conflict with your existing Vista (or XP) setup.

If the above steps do not help, use more advanced steps:

1. Restart the computer. Then, your computer will roll back to Windows Vista.
2. Click **Start**, right-click **Computer**, and then click **Properties**.
3. On the **Advanced** tab, click **Environment Variables**.
4. Under **System** variables, click **New**.
5. Type **MIG_UPGRADE_IGNORE_PLUGINS** in the **Variable** name field.
6. Type **IphlpsvcMigPlugin.dll** in the **Variable** value field.
7. Click **OK** three times to close the dialog boxes.
8. Start the upgrade installation again.

Problem 2: Windows 7 setup fails when copying files.

Solution: Perform these steps in order to resolve this issue:

1. Disable any security software before attempting to upgrade or do a clean install.
2. Make sure your computer is updated (devices and applications)
3. Disconnect any external devices before installing
4. Check your hard disk for any errors:
 - a. Click **Start** and Type: **CMD**, from the results, right click **CMD**
 - b. Click **'Run as Administrator'**
 - c. At the Command Prompt, type: **chkdsk /r /f**
 - d. When you restart your system, your computer will be scanned for errors and attempts will be made to correct them.
5. Click **Start**, type **msconfig** in the Start Search box, and then press **ENTER**.
User Account Control permission: If you are prompted for an administrator password or for a confirmation, type the password, or click Continue.
6. On the **General** tab, click **Selective Startup**.
7. Under **Selective Startup**, click to clear the **Load Startup Items** check box.
8. Click the **Services** tab, click to select the **Hide All Microsoft Services** check box, and then click **Disable All**.
9. Click **OK**.
10. When you are prompted, click **Restart**.
11. Attempt the upgrade again

Also, run the Windows 7 Upgrade Advisor, it will scan your system and provide a report telling you if your PC can run Windows 7 and if there are any known compatibility issues with your programs or hardware.

Problem 3: Installer gives error code: 0x80070570.

Solution: This error occurs because of missing or corrupt files. This problem during Windows 7 installation has been attributed to a bad DVD created from the .ISO file used for the installation of Windows 7. A corrupt .ISO image or an incomplete download too could be the root cause of the issue.

To address this Windows 7 installation problem, you could try and download the .ISO file from a valid source and burn the DVD again using software, such as, ImgBurn, gBurner or MagicISO at low speeds of about 4x.

Problem 4: DVD drive not found when installing/upgrading to Windows 7.

Solution: There can be two possible solutions for the above problem:

- The standard solution here is to run **REGEDIT**, browse to **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Class**, then delete both **UpperFilters** and **LowerFilters** in the right-hand pane (**UpperFilters.bak** and **LowerFilters.bak** entries can be ignored).

- The other solution for the above problem is resetting the drive letter. To do so, Click **Start**, type **Disk Management** and choose the "**Create and format hard disk partitions**" link. If your optical drive is visible here then right-click it, select **Change Drive Letter and Paths**, click **Change** and choose a new letter. If the drive is now visible in Explorer, then repeat the process to change the drive letter back; if it's still not visible, reboot, and it should appear.

Problem 5: Activation Error 0xC004F061 during activation of Windows 7.

Solution: If you receive error "0xC004F061" when trying to activate Windows 7, it means you're using a product key for an upgrade version of Windows 7 and a previous version of Windows wasn't on your computer when Windows 7 was installed.

To install an upgrade version of Windows 7, Windows Vista, or Windows XP must be installed on your computer. If you format the drive before starting the installation process, you won't be able to use the upgrade product key to activate Windows 7. To activate Windows 7, you'll need to install your previous version of Windows, and then reinstall Windows 7.

Problem 6: When upgrading your current operating system to Windows 7 on a computer that is running Windows Live OneCare, you may encounter following message:

"These programs might not work properly after the upgrade. We recommend uninstalling these programs before upgrading. Cancel the upgrade, open Control Panel and search for uninstall a program."

Solution: This problem occurs because Windows Live OneCare is not compatible with Windows 7. To resolve the issue uninstall Windows Live OneCare from Add/Remove programs. If you cannot uninstall OneCare, you must download and run the OneCare cleanup utility. To do this, follow these steps:

1. Download the OneCare Cleanup utility to your computer. Then click Save to save the download to your desktop.
2. When the download completes, right-click the OneCareCleanUp.exe file on your desktop, and then click **Run as administrator**.
3. Click **Run** on the Internet Explorer Security dialog box. If you are prompted for an administrator password or for confirmation, type your password, or click **Continue**, and then, click **OK**
4. When you receive the message "This program will clean Windows Live OneCare from your computer..." click **Continue**.
5. Click **Accept** on the **End-User Licensing Agreement**, and then click **Continue**.
6. Click Clean to begin cleaning Windows Live OneCare from your computer.
7. When the cleaning process has completed you will be prompted to restart your computer. Close all running applications, and then click Restart Now.

Problem 7: When you try to upgrade from Windows Vista to Windows 7, the upgrade fails and your computer rolls back to Windows Vista.

Solution: This problem may occur for one of the following reasons:

- A memory issue on the computer.
- A hard disk issue on the computer.
- Certain third-party drivers are installed on the computer

Use both of the following two methods to troubleshoot the problem.

Method 1: Check the computer's memory for errors

Run the Windows Memory Diagnostic tool to check for memory problems. To do this, follow these steps:

1. Close all open programs.
2. Click **Start**, click **Control Panel**, click **System and Security**, and then click **Administrative Tools**.
3. Double-click **Windows Memory Diagnostic**.
4. When you are prompted, click **Restart now and check for problems**.

If the Windows Memory Diagnostic tool returns an error, this indicates there are problems with the memory on the computer.

Method 2: Check the hard disk for errors

Run the Chkdsk tool to check for disk problems. To do this, follow these steps:

1. Click **Start** and then click **Computer**.
2. Right-click the system drive, and then click **Properties**.
3. On the **Tools** tab, click the **Check Now** in the **Error-checking** area.
4. Click to select both the **Automatically fix file system errors** check box and the **Scan for and attempt recovery of bad sectors** check box.
5. Click **Start**.
6. If you receive the following message, click **Schedule disk check**, and then restart the computer.

Windows can't check the disk while it's in use. Do you want to schedule the disk check to occur the next time you restart the computer?



Check Your Understanding

1. What do you mean by Windows 7 parallel installation?
2. What do you mean by Windows 7 repair installation?
3. What is the possible cause for error code: 0x80070570?

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4. What can be the two possible reasons for DVD drive not found error?
5. What can be the cause for Activation Error 0xC004F061 during activation of Windows 7?

Windows 7 Boot Process

When you start a Windows 7 computer, it performs the below steps to load Windows:

1. When the computer is turned on, the CMOS loads the BIOS and then runs POST.
2. The BIOS loads the MBR, which indicates the first active partition.
3. The MBR loads the Boot Sector of the active partition.
4. The Boot Sector of the partition points to BOOTMGR file so it could be loaded.
 - a. The execution of BOOTMGR performs the following actions:
If there is a hidden folder BOOT (created in the Vista installation) with a valid content, then it locates the BCD (Boot Configuration Data) file which contains boot options of Windows 7.
 - b. If there is more than one operating system installed on our PC (other Windows 7 or any other pre-7 version of Windows). It shows you a menu (similar operation to BOOT.INI in the system based in NT core) in which you can select the desired OS.
5. When you select Windows 7, BOOTMGR transfers the control to the Windows Loader (winload.exe) or winresume.exe (in case the system was hibernated).
6. Winloader loads drivers that are set to start at boot and then transfers the control to the Windows kernel and Windows is started.

Difference between Windows 7 and Windows Vista Boot Processes

Although the boot processes of Windows 7 and Windows Vista are almost the same, but Windows 7 boot process has been improved. The basic differences are listed below:

- Windows 7 boots faster than its predecessors.
- Previous Windows versions initializes unnecessary services by default, and that turning these off can help to improve boot times, save system resources. But Windows 7 takes care of this issue and boots the computer quickly. There is no more DFS replication service and Terminal service.
- The pearl animation in Vista has been dumped, saving more time. Microsoft has cut down on the display transitions, so there's less screen flashing before the log-in screen appears. And Windows 7 no longer tries to synchronize the animation and log-in sound, which means it doesn't have to wait until your soundcard is initialized before the boot can continue.
- Windows 7 extends Vista's diagnostic abilities, allowing the system to record each boot time, detect any problems or hold-ups, identify their most likely cause and perhaps even help with a solution.



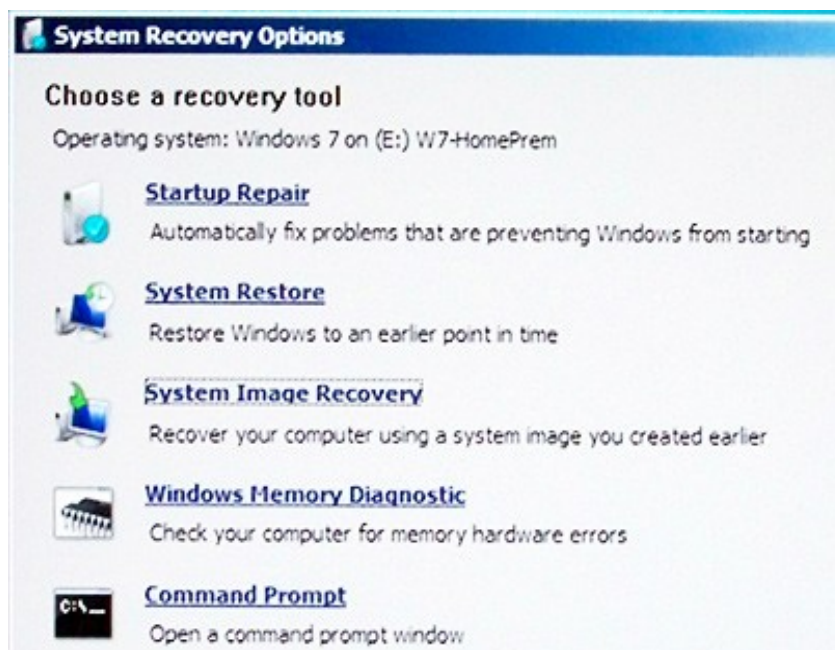
Check Your Understanding

1. What are the three differences between booting process of Windows Vista and 7?
2. What is the full form of BCD?



Windows Recovery Environment (Win RE)

Windows 7's Recovery Environment enables users to perform a variety of system and data recovery tasks on a system that won't boot normally, including:

- Fixing boot-level startup problems (Startup Repair)
- Returning your system to a previous configuration (System Restore)
- Recovering your computer with a previously-created system image (System Image Recovery)
- Checking for defective memory (Windows Memory Diagnostic)
- Running command-prompt programs (Command Prompt)



Creating Windows 7 Repair Disc

1. Open Backup and Restore by clicking the Start button , clicking Control Panel, clicking System and Maintenance, and then clicking Backup and Restore.
2. In the left pane, click Create a system repair disc, and then follow the steps.  If you're prompted for an administrator password or confirmation, type the password or provide confirmation.

Methods to Start Windows RE

Method 1:

Windows 7 installs an option to launch RE on this menu. To see the Advanced Boot Options menu, press F8 after restarting your computer. Windows 7 places the **Repair Your Computer** option, which starts Recovery Environment, at the top of the list of options.

After you select **Repair Your Computer** from the Advanced Boot Options menu, it asks you to provide keyboard input method, language (if you have installed multiple-language support). Once it is done, you need to specify the user name and password to enable the access to the command prompt. After this, the Windows RE window opens.

Method 2:

If somehow Recovery Environment files are missing or corrupted, you can use Windows 7 System Repair Disc or Install Disc to start Windows RE. For this, follow the steps mentioned below:

- Insert the Repair Disc and restart the system. When prompted, press any key to start the system from CD or DVD.
- Confirm the keyboard layout and language. Click Next to continue.
- Select the Windows 7 installation you need to repair. If you have installed multiple versions of Windows 7, be sure to choose the correct one.
- Click Next to continue.



Check Your Understanding

1. What are the system recovery options available in Windows 7 recovery environment?
2. What are the two methods to start Windows RE?

System Image Recovery

What is System Image?

A system image is an exact copy of a drive. By default, a system image includes the drives required for Windows to run. It also includes Windows and your system settings, programs, and files.

What is its use?

Restore the contents of your computer if your hard disk or entire computer ever stops working.

Note: *When you restore your computer from a system image, it's a complete restoration — you can't choose individual items to restore, and all of your current programs, system settings, and files are replaced with the contents of the system image.*

How to Restore using a System Image?

1. Boot your computer using a Windows 7 System Repair Disc or Install Disc
2. After that the System Recovery Options screen comes up. Here you want to choose the correct keyboard input and click Next.
3. Select System Image Recovery option or *Restore your computer using a system image you created earlier* and click Next
4. At this screen you can see that it found the last system image which is saved on an external hard drive. If you want to use an older system image, click “*Select a system image*” then browse through older images until you find the correct one. Because we want everything to be as close to how it was before it crashed, we select *Use the latest available system image (recommended)* then click Next.
5. In the next screen just click on Next...there are no other partitions in this instance so we don't need to worry about excluding disks.
6. Finally you're given an quick overview of the selected image and if everything looks right, click Finish.
7. Click Yes to the warning message that comes up making sure you want to restore the computer with the selected image.
8. The restore process will begin. It might take a few hours to restore everything depending on the size of the image and how much data there is. Provided there are no errors and the process completes successfully, your system will restart and the system should be restored.



Check Your Understanding

1. What is a system image?
2. How will you perform system restore using system image?

Rolling Back Windows 7 Installation

What is Windows 7 rollback?

It is the process to uninstall Windows 7 and reinstall old version of Windows.

When to perform Windows 7 rollback?

When the operating system is not working fine or has been corrupted.

Three scenarios where you need to perform Windows 7 rollback:

- You installed Windows 7 on a Windows-based computer
- You installed Windows 7 on a computer that did not have an operating system installed
- You upgraded from Windows Vista to Windows 7

Scenario 1: You installed Windows 7 as a new installation over an earlier version of Windows

You used the Windows 7 installation media to install Windows 7 to the same hard disk drive on which you had Windows XP, Windows Vista, or another version of Windows 7 installed.

Note: *This Scenario applies when upgrading to Windows 7 using both the Upgrade media and the Full product media.*

In this scenario, the Windows 7 installation will have created a Windows.old folder that contains your previous operating system and personal files. This Windows.old folder is in the root of the Windows partition. To revert to this previous operating system, follow the below given steps:

Step 1: Determine whether there is a Windows.old folder and whether there is sufficient free space on the Windows hard disk

1. Click Start and then click Computer.
2. On the View menu, click Details.
3. In the Free Space column, note how much space is available for Local Disk (C:) under the Hard Disk Drives area.
4. In the Hard Disk Drives area, double-click Local Disk (C:), and then determine whether the Windows.old folder exists.

Important If the Windows.old folder does not exist, you cannot follow the steps in this article to restore the previous Windows installation to this computer. You must backup and restore or transfer your files to the previous operating system.

5. Right-click the **Windows.old** folder.
6. Windows 7 will determine the size of the folder after several seconds.

Determine whether the Windows.old folder is smaller than the free space that is available for Local Disk (C:) in step 1.2.

Note If the Windows.old folder is two times as large as the free space that is available for the Local Disk (C:) entry, you may be unable to restore the previous Windows installation.

Step 2: Start the Windows Recovery Environment

1. Put the Windows 7 installation disc in the DVD drive, and then restart the computer.
2. Press a key when you are prompted to restart from the disc.
3. In the **Install Windows** window, select a language, a time, a currency, a keyboard input method or other input method, and then click **Next**.
4. In the **Install Windows** window, click **Repair your computer**.
5. In the **System Recovery Options** window, click the version of the Windows 7 operating system that you want to repair, and then click **Next**.
6. In the **System Recovery Options** window, click **Command Prompt**.

The Command Prompt window opens, and it displays the command prompt. The command prompt is where you will type the commands that are described in the following steps.

Step 3: Move the Windows 7 folders to a new Win7 folder

Note When you type one or more of the commands at the command prompt in the following steps and press ENTER, you may receive the following message:

The system cannot find the file specified.

If you receive this message, go to the next step in this section, and then type the command in that next step.

Type the following commands and press ENTER after each command:

C:

Md Win7

Move Windows Win7\Windows

Move "Program Files" "Win7\Program Files"

Move Users Win7\Users

Attrib -h -s -r ProgramData

Move ProgramData Win7\ProgramData

Rd "Documents and Settings"

Step 4: Copy the contents or move the contents of the Windows.old folder

Note When you type one or more of the commands at the command prompt in the following steps and press ENTER, you may receive the following message:

The system cannot find the file specified.

If you receive this message, go to the next step in this section, and then type the command in the next step.

Type the following commands and press ENTER after each command:

move /y c:\Windows.old\Windows c:

move /y "c:\Windows.old\Program Files" c:

move /y c:\Windows.old\ProgramData c:

move /y c:\Windows.old\Users c:

move /y "c:\Windows.old\Documents and Settings" c:

Step 5: Restore the boot sector for the previous Windows installation

Type one of the following commands at the command prompt, as appropriate for your situation.

Note: In the following commands, D: represents the DVD drive. If the DVD drive on the computer is represented by a different letter, such as E:, use that letter in the command.

- **When the previous Windows installation was Windows Server 2003, Windows XP, or Microsoft Windows 2000**

Type the following command, and then press ENTER:

D:\boot\bootsect /nt52 c:

- **When the previous Windows installation was Windows Vista**

Type the following command, and then press ENTER:

D:\boot\bootsect /nt60 c:

Step 6: Restore the Boot.ini file for the previous Windows installation of Windows XP or of Windows 2000

Note Follow these steps only when the previous installation is Windows XP or Windows 2000.

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Type the following commands and press ENTER after each command:

Attrib -h -s -r boot.ini.saved

Copy boot.ini.saved boot.ini

Step 7: Close the Command Prompt window, and then click Restart

1. Type the following command at the command prompt, and then press ENTER:

exit

2. Click Restart to restart your computer.

Scenario 2: You installed Windows 7 on a computer that did not have an operating system installed

In this scenario, you used the installation media to install Windows 7 to an empty hard disk drive.

In this scenario, there is no previous operating system to which you can revert. If you want to back up your computer and transfer the data from this Windows 7 installation to your next operating system, follow these steps:

1. Back up your data to a network location or removable media.
2. Insert the Windows XP or Windows Vista installation media, and then install the Windows operating system.
3. Complete the installation.
4. Restore, transfer, or copy your data to the new operating system after the installation has completed

Scenario 3: You upgraded from Windows Vista to Windows 7

On a Windows Vista-based computer, you inserted the Windows 7 installation media and selected the Upgrade option. Then, you upgraded from Windows Vista to Windows 7.

In this scenario, there is no previous operating system to which you can revert. If you want to back up your computer and transfer the data from this Windows 7 installation to your next operating system, follow the steps that are listed in Scenario 2.



Check Your Understanding

1. What is Windows 7 rollback and why do you need it?
2. List three scenarios where you need to perform Windows 7 rollback.

Troubleshooting Black Screen Issues

The black screen of death (BSOD or BISOd) is generally a colloquialism used for the black error screen displayed by Windows 7 after encountering a critical system error, which can cause the system to shut down to prevent damage.

When does Windows 7 Black Screen appears?

1. While Playing video games
2. After login process
3. During boot process
4. After downloading Windows update
5. After installing security updates

Common reasons for Windows 7 black screen:

1. There is a CD, a DVD or a floppy disk in your CD, DVD, or floppy drive when you start the computer.
2. Improper/Incomplete upgrade from previous Windows versions
3. Master boot record, Partition tables, Boot sector, or NTLDR file corruption
4. Incompatible driver installation
5. Video adaptor problems
6. Virus Attack

Common resolutions to overcome Windows 7 black screen:

1. Start the computer in safe mode and disable your video adapter.
2. Start the computer in safe mode and run System Restore.
3. Some users encounter this problem due to a malware, if this is the case with you, run Windows 7 in safe mode and scan your system with Malware bytes and other anti malware apps to get rid of dangerous malwares.
4. Use System Restore to undo the recent changes.
5. Use Startup Repair to fix Windows startup files.
6. Use Action Center to check for solution to the problems.
7. In case, all the above solutions fail to resolve black screen issue, then reinstall Windows 7.

Common Black Screen Errors:

1. No Signal
2. Use the "Enable low-resolution video (640X480)" startup option, and then update your video adapter driver.
3. Windows failed to start. A recent hardware or software change might be the cause.

Troubleshooting Blue Screen Errors

Stop errors (also sometimes called blue screen or black screen errors) can occur if a serious problem causes Windows 7 to shut down or restart unexpectedly. You might see a message that says, "Windows has been shut down to prevent damage to your computer."

These errors can be caused by both hardware and software issues, and it can be difficult to troubleshoot the problem. The following tools and methods can often help get Windows up and running again.

These tools and methods can help you roll back your system to an earlier state, and help ensure your computer has the latest updates installed.

- Use System Restore to undo the recent changes
- Use Startup Repair to fix Windows startup files
- Use Action Center to check for solution to the problems
- Install the recent software updates using Windows Update
- Search for the drivers on manufacturer's website
- Use Safe mode to diagnose and troubleshoot the problem
- Check the computer for hard disk and memory issues
- Restore your computer using a system image backup
- Reinstall Windows 7

Common Blue Screen Errors:

Error 1: Stop 0x0000007E (<parameter1>, <parameter2>, <parameter3>, <parameter 4>) SYSTEM_THREAD_EXCEPTION_NOT_HANDLED

- **Cause:** This issue occurs because of a race condition in the USB Video driver when a USB video device is unloaded.
- **Solution:** To work around this issue, disable all USB Video Class compliant devices. The problem can be fixed by installing Fix311840 released by Microsoft.

Error 2: STOP 0x0000007B INACCESSABLE_BOOT_DEVICE

- **Cause:** This issue occurs if the disk driver in Windows 7 is disabled.
- **Solution:** This driver must be enabled before you change the SATA/RAID mode of the boot drive.

Error 3: STOP 0XC00000221 or STATUS_IMAGE_CHECKSUM_MISMATCH

- **Cause:** This indicates a damaged page file; or disk or file corruption; or a faulty hardware. The error will indicate the exact nature and the name of the damaged system file.
- **Solution:** Use the Windows recovery Environment or a System Restore or Last Known Good Configuration to resolve this issue.

Error 4: STOP 0x00000024 or NTFS_FILE_SYSTEM

- **Cause:** problem occurred within the NTFS file-system driver. A similar Stop error, 0x23, exists for FAT32 drives. The most likely cause is a hardware failure in a disk or disk controller.
- **Solution:** A Check all physical connections to all hard disks in the system and run CheckDisk.

Error 5: STOP 0x00000050 or PAGE_FAULT_IN_NONPAGED_AREA

- **Cause:** A hardware driver or system service requested data that was not in memory. The cause may be defective physical memory or incompatible software, especially remote control and antivirus programs.
- **Solution:** If the error occurs immediately after installing a device driver or application, try to use Safe Mode to remove the driver or uninstall the program.



Check Your Understanding

1. What are the main causes for Windows 7 black screen error?
2. What are the common reasons for Windows 7 black screen?
3. What are the common resolutions to overcome Windows 7 black screen?
4. What is the cause for STOP 0x00000050 or PAGE_FAULT_IN_NONPAGED_AREA error message?
5. How will you resolve STOP 0x0000007B INACCESSABLE_BOOT_DEVICE error message?

Day 4: Internet Explorer 8.0 & Troubleshooting

Module Objectives:

By the end of this module, you will understand:

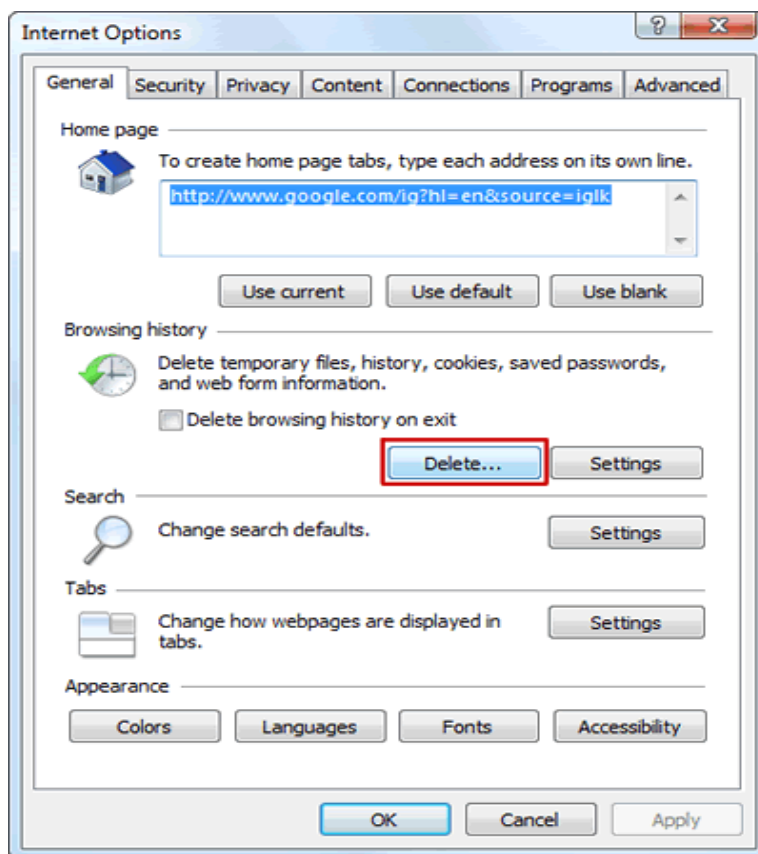
- Discuss how to configure Internet Explorer 8
- Discuss Uninstallation Process of Internet Explorer 8
- Discuss enabling, disabling Add-ons
- Discuss common issues with IE 8 and Troubleshooting

Internet Explorer 8

Microsoft has introduced Internet Explorer 8 in Window 7. IE 8 has more security features in compare to its earlier versions. IE 8 is more reliable and faster to access web pages, not only this it also protects you from phishing sites, popup blocker, private browsing, and compatibility view and settings.

Configuring Internet Explorer 8

1. Click the IE8 icon oh the taskbar. You will see the initial setup screen, and click **Next**
2. Choose whether you want suggested sites or not. Click **Next** after choosing the required option.
3. Check Choose custom settings. If you think the default screen listed option has been ok, and do not want to do more to set up, you can check **Use Express** settings. Click **Next**.
4. If you want a custom provider, choose **Show me a webpage after setup** to choose more search providers. Click **Next**.
5. Choose to download updates and click **Next**.
6. If you want to set up more accelerators, choose **Show me a webpage after setup** to choose more Accelerators. Click **Next**.
7. It is recommended to choose **Turn on SmartScreen Filter**. Click Next.
8. You can choose to use Compatibility View updates. Compatibility View displays the website as viewed in Internet Explorer 7, which will correct display problems like misaligned text, images, or text boxes.
9. Click **Finish**, and you can use IE8 in windows 7.



Internet Explorer 8.0 Configuration (Advanced)

To access and use Internet Options in IE 8, perform the below steps:

1. Close all other applications, and launch Internet Explorer 8.
2. From the Tools menu, select Internet Options. Internet Options provides you various tabs that let you configure IE 8 as per your preferences:

General Tab allows you to:

- Change IE home page
- Delete web surfing history, temporary Internet files, browsing history, cookies, saved passwords, and web form information
- Change search settings
- Change how Internet Explorer works with tabs
- Change appearance settings

Security Tab allows you to:

- Set the security zone or change security settings for Internet, Local Intranet, Trusted sites, and Restricted sites
- Customize security level for the preferred zone
- Restore all zones to the default level

Privacy Tab allows you to:

- Customize the cookies settings, such as, allowing or blocking any cookie, overriding cookies
- Turn On/Off Pop-up Blocker
- Disable InPrivate Browsing

Content Tab allows you to:

- Enable or disable the content advisor
- Clear SSL (Secure Sockets Layer) State and customize the certificate settings for the secured sites and encrypted connections
- Customize the Auto Complete and Feeds settings as per your needs

Connections Tab allows you to:

- Setup Internet connection or VPN connection
- Modify Dialup and LAN settings

Programs Tab allows you to:

- Set IE 8 browser as default browser
- Manage add-ons
- Choose program as HTML editor
- Customize the programs you wish to use for other Internet services

Advanced Tab allows you to:

- Check or uncheck the IE settings
- Restore advanced settings for IE 8

Configuring Internet Explorer 8.0 for Secure Use

1. Open **Tools** menu and choose **Internet Options**.
2. Open **Security** tab and click **Reset all zones to default level**, if the button is not grayed out. Also make sure that **Enable Protected Mode (requires restarting Internet Explorer)** is on for Internet and Restricted sites zones – this defends your computer from malicious software and drive-by attacks on the Internet.

3. Next, open Advanced tab. Always turn on both Disable script debugging settings. Then check Enable automatic crash recovery and Enable third-party browser extensions.
4. If you happen to live in a country that has non-latin character set, you might want to turn on the Use UTF-8 for mailto links option.
5. Always turn on the Check for signatures on downloaded programs and Do not save encrypted pages to disk.
 Never turn on the Enable Integrated Windows Authentication.
 Always turn on new protection methods Enable memory protection to help mitigate online attacks and Enable SmartScreen Filter.
 Leave only Use SSL 3.0 and Use TLS 1.0 checked to speed up secure web traffic (HTTPS protocol). Clear Use SSL 2.0, Use TLS 1.1 and Use TLS 1.2 boxes.
 Turn on Warn about certificate address mismatch, too
6. Scroll all the way down and clear the Warn if changing between secure and not secure mode box. Then make sure that the Warn if POST submittal is redirected to a zone that does not permit posts box is checked.
 Click OK to close the Internet Options dialog. You might have to restart Internet Explorer for all settings to take effect.



Check Your Understanding

1. Name all the tabs that help you to configure Internet Explorer 8.
2. What does Connections tab in Internet Option window allow you to do?
3. Which tab under Internet Option window allows you delete temporary files, history, and cookies?
4. What are security zones?

Uninstalling Internet Explorer 8

When you remove Internet Explorer 8, your earlier version of Internet Explorer is restored with your customizations (such as add-ins, Favorites, and your home page). However, Internet Explorer 8 is a part of Windows 7. Therefore, if you remove Internet Explorer 8, you will have to install a third-party browser to be able to browse the Internet.

“Uninstall” means that you can now remove the Internet Explorer executable completely from Windows 7. The IE files themselves will not be removed (for now) because IE has been integrated into a couple Windows components. Thus, to remove all the references of IE8 from Windows 7, the steps are as follows:

1. Close all programs.
2. Click **Start** and then **Control Panel**.
3. Under Programs, click Uninstall a program.
4. In the tasks pane, click **Turn Windows features on or off**.

5. In the list of windows features, clear the check box next to Internet Explorer 8.
6. You receive a warning message in a pop-up window. Click **Yes**. Internet Explorer 8 will now be uninstalled. The system will restart after the installation.

Adding Sites to the Trusted Sites List

Internet Explorer is configured by default to prevent Internet Web sites from performing many actions that might compromise the computer's security or the user's privacy. However, some legitimate Web sites might need to perform those actions to allow Web applications to run properly. Administrators can add sites to the Trusted Sites list to grant them additional privileges.

To add a site to the Trusted Sites list, follow these steps:

1. In Internet Explorer, click the **Tools menu** on the toolbar, and then click **Internet Options**.
2. In the Internet Options dialog box, click the **Security tab**. Click **Trusted Sites**, and then click **Sites**.
3. In the Trusted Sites dialog box, clear the Require Server Verification check box if you access the server using HTTP rather than HTTPS.
4. In the Add This Website To The Zone box, type the URL of the Web site, such as <http://www.contoso.com>, and then click **Add**.
5. Click **Close**.

Enabling/Disabling IE8 Add-Ons

Add-ons extend Internet Explorer capabilities to enable Web sites to provide much richer, more interactive content. The commonly used add-ons are Shockwave Flash, Windows Media Player, etc. But sometimes, these add-ons can create problems when using IE8. To do so, follow the below mentioned steps:

1. Click the **Tools** button on the toolbar, and then click **Manage Add-Ons**.
2. In the **Manage Add-Ons** dialog box, select an add-on, and then click Disable to prevent the add-on from automatically loading. If the add-on is an ActiveX control, you can click Delete to permanently remove it.
3. If an add-on is causing serious enough problems that you can't start Internet Explorer, you can disable the add-on without opening Internet Explorer by following these steps:
 - a. Click **Start**, and then click **Control Panel**.
 - b. Click the **Network And Internet** link.
 - c. Under Internet Options, click the **Manage Browser Add-Ons** link. The Internet Properties dialog box appears.
 - d. Click **Manage Add-Ons**.
 - e. In the Manage Add-Ons dialog box, select an add-on, and then click **Disable to prevent the add-on** from automatically loading.

Starting Internet Explorer without Add-Ons

A buggy or malicious add-on can cause problems with starting Internet Explorer. To work around this problem and launch Internet Explorer without add-ons, follow these steps:

1. Click **Start**. Then, click **All Programs, Accessories**, and **System Tools**.
2. Click **Internet Explorer (No Add-Ons)**.

Internet Explorer starts with all add-ons disabled. If a Web page opens a new window when you click a link, that new window also has add-ons disabled. Add-ons will be enabled automatically the next time you start Internet Explorer using the standard shortcut. Alternatively, you can start Internet Explorer manually using the -extoff parameter by clicking Start, typing iexplore -extoff, and pressing Enter.



Check Your Understanding

- How can you launch Internet Explorer without add-ons?
- How to enable and disable IE add-ons?
- How to add sites to trusted site list?
- How to uninstall IE 8?

Troubleshooting Internet Explorer 8.0 Issues

Problem 1: You cannot view, access, or load some Web pages.

Solution: Windows 7 has improved upon the previous Network Diagnostics found in Windows XP and Windows Vista. By default, there are now two Internet Explorer troubleshooters found in Windows 7. These should help identify and resolve most frequently occurring issues that could cause your Web sites to load incorrectly. To run Internet Explorer Troubleshooter, follow these steps:

1. Close all programs.
2. Click **Start** and then click **Control Panel**
3. Under **System and Security**, click **Find and fix problems**.
4. On the task pane on the left, click **View All**.
5. Click **Internet Explorer Performance**. This opens a new window.
6. Click **Next**.
7. The troubleshooter will run and fix all identified issues automatically. Click **Close**.

After the troubleshooter has successfully run, follow the steps to run Internet Explorer Safety troubleshooter.

Problem 2: When you start Windows Internet Explorer 8, you may receive the following message:

Internet Explorer 8 is in a special no-add-ons mode so that you can fix a compatibility problem with Google Toolbar

Solution: This problem occurs because the "Google Toolbar" Internet Explorer add-on is incompatible with the version of Internet Explorer 8 that you are using.

To solve this, you need to update to the latest Google Toolbar.

Problem 3: Windows Internet Explorer 8 crashes periodically when you attempt to open or close tabs. You may receive the error:

Internet Explorer has encountered a problem and needs to close

Solution: This is due to a set of incompatible add-ons/toolbars that you may have installed.

To use the Reset Internet Explorer Settings feature from Control Panel, follow these steps:

1. Exit all programs, including Internet Explorer (if it is running).
2. If you use Windows XP, click Start, and then click Run. Type the following command in the Open box, and then press ENTER:
inetcpl.cpl
3. Click the Advanced tab.
4. Under Reset Internet Explorer settings, click Reset. Then click Reset again.
5. When Internet Explorer finishes resetting the settings, click Close in the Reset Internet Explorer Settings dialog box.
6. Start Internet Explorer again.

Problem 4: Windows Internet Explorer 8 may stop responding or crash when a certain version of AVG Safe Search is installed:

If you are seeing this article after clicking a link in Internet Explorer 8: Your browser is in a special no-add-ons mode so that you can fix a compatibility problem with AVG Safe Search, a component of AVG Anti-Virus.

Solution: This problem may occur if you are using an incompatible version of the AVG software. To resolve this problem, update the AVG software to the latest version. To do this, open the AVG user interface, and then click **Update now** to automatically download and install the latest version of the AVG software.

Or, visit the following AVG Web site to obtain the latest version of the AVG software:

<http://free.avg.com/>

Problem 5: You see the following error message opening Internet Explorer 8:

Internet Explorer 8 is in a special no-add-ons mode so that you can fix a compatibility problem with Weather Channel Toolbar.

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Solution: Weather Channel Toolbar is an add-on for Internet Explorer that shows weather information. Your version of the Weather Channel Toolbar Internet Explorer add-on is incompatible with Internet Explorer 8. To solve the issue, install the new version of the Weather Channel Toolbar add-on.

Problem 6: You encounter an error:

'A Program on your computer has corrupted your default search setting for Internet Explorer 8'

Solution:

Note: You need to create a system restore point before troubleshooting.

1. Click Start and then click Run
2. Type Regedit and then press Enter
3. Locate the following key:
HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\ExplorerUser Shell Folders
4. Add a new 'Expandable String value' inside the above mentioned key with a value name of 'AppData' and a value data of '%USERPROFILE%\Application Data'.
5. Restart the computer and then reopen IE8.

Problem 7: Favorites are missing in the Internet Explorer 8 after upgrading to Windows 7

Solution:

1. Click Start Run and type regedit.exe
2. Click to expand 'HKEY_CLASSES_ROOT'.
3. Locate and expand 'URL'
4. Change the value of 'PersistantHandler' to '{8CD34779-9F10-4f9b-ADFB-B3FAEABDAB5A}'
5. Open Internet Explorer and Click Tools >> Options.
6. Select the Content tab and click AutoComplete Settings.
7. Uncheck 'Use Windows Search for better results'.
8. Restart Internet Explorer.
9. Open AutoComplete Settings again and check 'Use Windows Search for better results'
10. Restart Internet Explorer

Problem 8: Unable to right click on the IE8.

Solution: HKEY_CURRENT_USER\Software\Policies\Microsoft\Internet Explorer\Restrictions

Parameter: NoBrowserSaveAs

Type: string

Comments: If this parameter is 1 then "File/Save As" menu is disabled in Internet Explorer. To enable it set parameter to 0 or delete it.

Problem 9: If address bar is missing in IE8.

Solution:

HKEY_CURRENT_USER\Software\Microsoft\Internet Explorer\Toolbar\WebBrowser\ItBarLayout

The 17th byte controls the address bar. If the value is 0x1D, there is no address bar. If the value is 0x1F there is an address bar.



Check Your Understanding

- You cannot view, access, or load some Web pages. What can be the cause and solution for this problem?
- The address bar is missing in IE8, what can be the cause and solution?
- You upgraded from IE7 to IE8. However, after the upgrade process is finished, your favorites are missing. How can you overcome this problem?
- What is cause and solution for the below error message:
"Internet Explorer 8 is in a special no-add-ons mode so that you can fix a compatibility problem with Weather Channel Toolbar"

Day 5: Manage Networks

Module Objectives:

By the end of this module, you will understand:

- Discuss Networking concepts
- Discuss Networking & Sharing center
- Discuss the difference between Workgroup, Domain and Homegroup
- Discuss File & Printer Sharing in Windows 7
- Discuss how to join a wireless network using Windows 7
- Discuss different Network Diagnostics
- Discuss troubleshooting Network Connectivity issues in Windows 7

Network Connectivity

Networking and Sharing Center

The Network and Sharing Center in the control panel is a place from where all networking settings and tasks can be launched in Windows 7. This is the place where you can:

- Check your connection status
- View your network visually
- Troubleshoot connection problems
- Get information about your network
- Verify whether your PC can successfully access the Internet

Methods to start Network and Sharing Center

1. Launch the Run window by pressing the Windows key + R, type `control.exe /name Microsoft.Network And Sharing Center` and click **OK**.
2. Click **Network icon** from the right side of the taskbar and then on '**Open Network and Sharing Center**'.
3. Go to **Control Panel -> Network and Internet -> Network and Sharing Center**.

Major improvements in Windows 7 Network and Sharing Center:

- Home Group incorporated
- Fewer Network adaptor options
- Left navigation and Sharing and Discovery options have been removed
- Network and Sharing options have been moved to "Choose homegroup and sharing options" window

Network Locations

A Network Location automatically sets the appropriate firewall and security settings for the type of network that you connect to. Windows 7 provides you four network locations:

- **Home Network** : Used for home networks or when you know and trust the people and devices on the network.
- **Work Network**: Used for small office or other workplace networks.
- **Public Network**: Used for networks in public places (such as coffee shops or airports).
- **Domain Network**: Used for domain networks such as those at enterprise workplaces.



Check Your Understanding

- What are the major improvements made in Windows 7 Network and Sharing Center?
- What are the major tasks that can be performed under Windows 7 Network and Sharing Center?
- Name all the network locations provided by Windows 7.

File Sharing Options

- **Public Folder Sharing:** The advantage of the Public folder is simplicity. All computers running Windows have Public folders. Anybody with a user account and password on a computer can access the public folders.

To turn Public folder sharing on or off

1. Open Advanced sharing settings by clicking the **Start** button, and then clicking **Control Panel**. In the search box, type network, click **Network and Sharing Center**, and then, in the left pane, click **Change advanced sharing** settings.
 2. Click the **chevron** to expand your current network profile.
 3. Under Public folder sharing, select one of the following options:
 - Turn on sharing so anyone with network access can read and write files in the Public folders
 - Turn off Public folder sharing (people logged on to this computer can still access these folders)
 4. Click Save changes. If you're prompted for an administrator password or confirmation, type the password or provide confirmation.
- **Individual Folder Sharing:** If you'd like more control over who can access a particular file or folder, you can share just that file or folder. This type of sharing requires slightly more effort to set up, but you can control specifically who can see or modify your files or folders. With this method, there's no need to spend time copying or moving files; you can share them from wherever they are on your computer.

You can share individual files and folders—and even entire libraries—with other people using the new Share with menu. The options you'll see depend on the file you're sharing and the type of network your computer is connected to—homegroup, workgroup, or domain.

To share files and folders on a homegroup, perform these steps:

1. Right-click the item you want to share, and then click **Share** with.

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2. Choose one of the following options:

- Homegroup (Read)
- Homegroup (Read/Write)
- Specific people

To share files and folders on a workgroup or domain, follow these steps:

1. Right-click the item you want to share, click **Share** with, and then click **Specific People**.
2. In the File Sharing wizard, do one of the following:
 - If your computer is on a domain, click the **arrow next to the text box**, and then click **Find** people. In the Select Users or Groups dialog box, type a name in the box, click **Check Names**, and then click **OK**.
 - If your computer is part of a workgroup, click the arrow next to the text box, click **a name from the list**, and then click **Add**.
 - Under the Permission Level column, select one of the following options:
 - a. Read
 - b. Read/Write
3. When you're finished adding people, click **Share**. If you're prompted for an administrator password or confirmation, type the password or provide confirmation.
4. After you receive confirmation that your item is shared, you can let people you've shared with know how to access it. Do one of the following:
 - If you have an e-mail program installed, click e-mail to send someone a link to your shared files.
 - Click **copy** to automatically copy the displayed link to the WindowsClipboard. Then you can paste it into an e-mail, instant message, or other program.
 - When you're finished, click **Done**.

- **HomeGroups:** A homegroup is a group of computers that share pictures, music, videos, documents, and even printers. The computers must be running Windows 7 to participate in a homegroup. Homegroup allows you to:
 - Connect wirelessly and share documents, photos, music and other files as well as your printer.
 - Make your files secure by making them read-only.
 - Give rights to other members of your Homegroup to modify your files.

To setup a HomeGroup, follow these steps:

1. Click the **Start** button or press the **Windows key**.
2. When the **Start Menu** opens, select **Control Panel**.

3. When the Control Panel window opens, in the section labelled Network and Internet, choose **Homegroup and Sharing** Options.
4. The Homegroup window opens, click the button labeled , Create a Homegroup.
5. The **Create a Homegroup** window opens, displaying the features you can share – Pictures, Documents, Music, Printers and Videos.
6. Check the boxes for those items you wish to share.
7. Click the **Next** button.
8. Next, Windows 7 generates a password to allow other computer user(s) to join the Homegroup.
9. Click **Print** password and instructions.
10. Give the Password information sheet to the other computer user(s).
11. Click the **Finish** button

To join a HomeGroup, you need a password that is provided by the owner of the HomeGroup. Follow these steps to join a HomeGroup:

1. Open HomeGroup by clicking the **Start** button, clicking **Control Panel**, typing homegroup in the search box, and then clicking **HomeGroup**.
2. Click Join now, and then complete the wizard.



Check Your Understanding

1. How can you join a HomeGroup?
2. How can you setup a HomeGroup?
3. How will you share files and folders on a workgroup or domain?
4. How to turn on Public folder sharing option on?

Follow these steps on a computer that belongs to the homegroup and has libraries that you want to share:

1. Open HomeGroup by clicking the Start button , clicking Control Panel, typing homegroup in the search box, and then clicking HomeGroup.
2. Under Share libraries and printers, select the check box for each library you want to share, and then click Save changes.

To share other libraries that you've created, follow these steps:

1. Click the **Start** button, and then click your **user name**.
2. Select the library you want to share, and then, in the toolbar, click **Share** with.
3. Select the people you want to share with. To access files or folders on other homegroup computers:

- Click the **Start** button, and then click your **user name**.
- In the navigation pane (the left pane), under **Homegroup**, click the **user account** name of the person whose files you want to access.
- In the file list, double-click the library you want to access, and then double-click the file or folder you want.

To leave a homegroup, follow the below steps:

1. Open HomeGroup by clicking the Start button, clicking Control Panel, typing homegroup in the search box, and then clicking HomeGroup.
2. Click Leave the homegroup.
3. Click Leave the homegroup, and then click Finish.

Difference Between a Domain, a WorkGroup, and a HomeGroup

WorkGroup	HomeGroup	Domain
<ul style="list-style-type: none"> • All computers are peers; no computer has control over another computer. • Each computer has a set of user accounts. To log on to any computer in the workgroup, you must have an account on that computer. • There are typically no more than twenty computers. • A workgroup is not protected by a password. • All computers must be on the same local 	<ul style="list-style-type: none"> • Computers on a home network must belong to a workgroup, but they can also belong to a homegroup. A homegroup makes it easy to share pictures, music, videos, documents, and printers with other people on a home network. • A homegroup is protected with a password, but you only need to type the password once, when adding your computer to the homegroup. 	<ul style="list-style-type: none"> • One or more computers are servers. Network administrators use servers to control the security and permissions for all computers on the domain. This makes it easy to make changes because the changes are automatically made to all computers. Domain users must provide a password or other credentials each time they access the domain. • If you have a user account on the domain, you can log on to any computer on the domain without needing an account on that computer. • You probably can make only limited changes to a computer's settings because network administrators often want to ensure consistency among computers. • There can be thousands of computers in a domain.

network subnet.	or	<ul style="list-style-type: none"> The computers can be on different local networks.
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Sharing Files in Windows 7 and Windows XP

HomeGroup feature is not compatible with Vista or XP. So, to share files between a Windows XP and Windows 7 computer, you need to perform some different steps.

- Perform these steps to share files between Windows 7 and Windows XP**

1. First make sure both machines are members of the same Workgroup which by default is named Workgroup.
2. On the Windows 7 machine go into Control Panel \ All Control Panel Items \ Network and Sharing Center then click on Change advanced sharing settings.
3. You will want to verify the following settings under Advanced Sharing Settings for the Home or Work and Public profile.

- Perform these steps to share files between Windows 7 and Windows XP**

1. First make sure both machines are members of the same Workgroup which by default is named Workgroup.
2. On the Windows 7 machine go into Control Panel \ All Control Panel Items \ Network and Sharing Center then click on Change advanced sharing settings.
3. You will want to verify the following settings under Advanced Sharing Settings for the Home or Work and Public profile.
4. If you want any user to have access the public shares turn off password protection. This is located in Advanced Sharing Settings toward the bottom of the list.
5. If you want to keep it enabled make sure there is a log in account for the other XP machines and they have a password.
6. Now if you go into Network in Windows 7 you should see your XP machine and the Windows 7 as well

- To turn on file and printer sharing, follow the below given steps:**

1. Open Advanced sharing settings by clicking the Start button, and then clicking Control Panel. In the search box, type network, click Network and Sharing Center, and then, in the left pane, click Change advanced sharing settings.
2. Click the chevron to expand the current network profile.
3. If printer sharing is off, under File and printer sharing, select Turn on file and printer sharing, and then click Save changes. If you're prompted for an administrator password or confirmation, type the password or provide confirmation.



Check Your Understanding

1. What are the differences between WorkGroup, HomeGroup, and Domain?
2. How will you share other libraries that you've created?
3. How will you to share files between Windows 7 and Windows XP?
4. How will you turn on file and printer sharing in Windows 7?

TCP/IP

TCP/IP defines the language that your computer uses to communicate with other computers. It is recommend using automated Dynamic Host Configuration Protocol (DHCP) to automatically assign Internet Protocol (IP) addresses to the computers on your network, if your network supports it. If you use DHCP, then you don't have to change your settings if you move your computer to another location, and DHCP doesn't require you to manually configure settings such as Domain Name System (DNS) and Windows Internet Name Service (WINS).

- **Steps to change TCP/IP settings:**

1. Open Network Connections by clicking the **Start** button, clicking **Control Panel**, clicking **Network and Internet**, clicking **Network and Sharing Center**, and then clicking **Manage network connections**.
2. Right-click the connection that you want to change, and then click **Properties**. If you are prompted for an administrator password or confirmation, type the password or provide confirmation.
3. Click the Networking tab. Under This connection uses the following items, click either **Internet Protocol Version 4 (TCP/IPv4)** or **Internet Protocol Version 6 (TCP/IPv6)**, and then click **Properties**.
4. To specify IPv4 IP address settings, do one of the following:
 - To obtain IP settings automatically, click **Obtain an IP address automatically**, and then click **OK**.
 - To specify an IP address, click **Use the following IP address**, and then, in the **IP address, Subnet mask, and Default gateway boxes**, type the IP address settings.
5. To specify IPv6 IP address settings, do one of the following:
 - To obtain IP settings automatically, click **Obtain an IPv6 address automatically**, and then click **OK**.
 - To specify an IP address, click **Use the following IPv6 address**, and then, in the IPv6 address, Subnet prefix length, and Default gateway boxes, type the IP address settings.
6. To specify DNS server address settings, do one of the following:

- To obtain a DNS server address automatically, click **Obtain DNS server address automatically**, and then click **OK**.
 - To specify a DNS server address, click **Use the following DNS server addresses**, and then, in the Preferred DNS server and Alternate DNS server boxes, type the addresses of the primary and secondary DNS servers.
7. To change DNS, WINS, and IP settings, click **Advanced**.

Network Troubleshooter

Network troubleshooter helps to diagnose and repair the problem. For example, when you see some error messages such as "Page cannot be displayed" or "Server is not available," you have the option of using the Network troubleshooter to identify the problem.

- **Ways to Access Network Troubleshooter**

- Right-click the **network icon** in the notification area of the taskbar, and then click **Troubleshoot** problems.
- Click the **Start** button, click **Control Panel**, and then, in the search box, type troubleshooter. Click **Troubleshooting**, click **Network and Internet**, and then click the type of problem you are experiencing.
- Click the **Start** button, click **Control Panel**, and then, in the search box, type network. In the list of results, click **Network and Sharing Center**, and then click **Troubleshoot problems**.
- Click the **Start** button, click **Control Panel**, and then, in the search box, type adapter. Under **Network and Sharing Center**, click **View network connections**, right-click a **network adapter**, and then click **Diagnose**.

- **Steps to view detailed Windows Network Diagnostics information:**

1. Click **Start**, right-click **Computer**, and then click **Manage**.
2. Select **Computer Management**, **System Tools**, **Event Viewer**, **Windows Logs**, and finally **System**.
3. In the Actions pane, click **Filter Current Log**.
4. In the Filter Current Log dialog box, click the **Event Sources** list, and then select **Diagnostics-Networking**. Click **OK**.
5. The Event Viewer snap-in displays a list of events generated by Windows Network Diagnostics with detailed information about every troubleshooting session.

Network Troubleshooting Tools

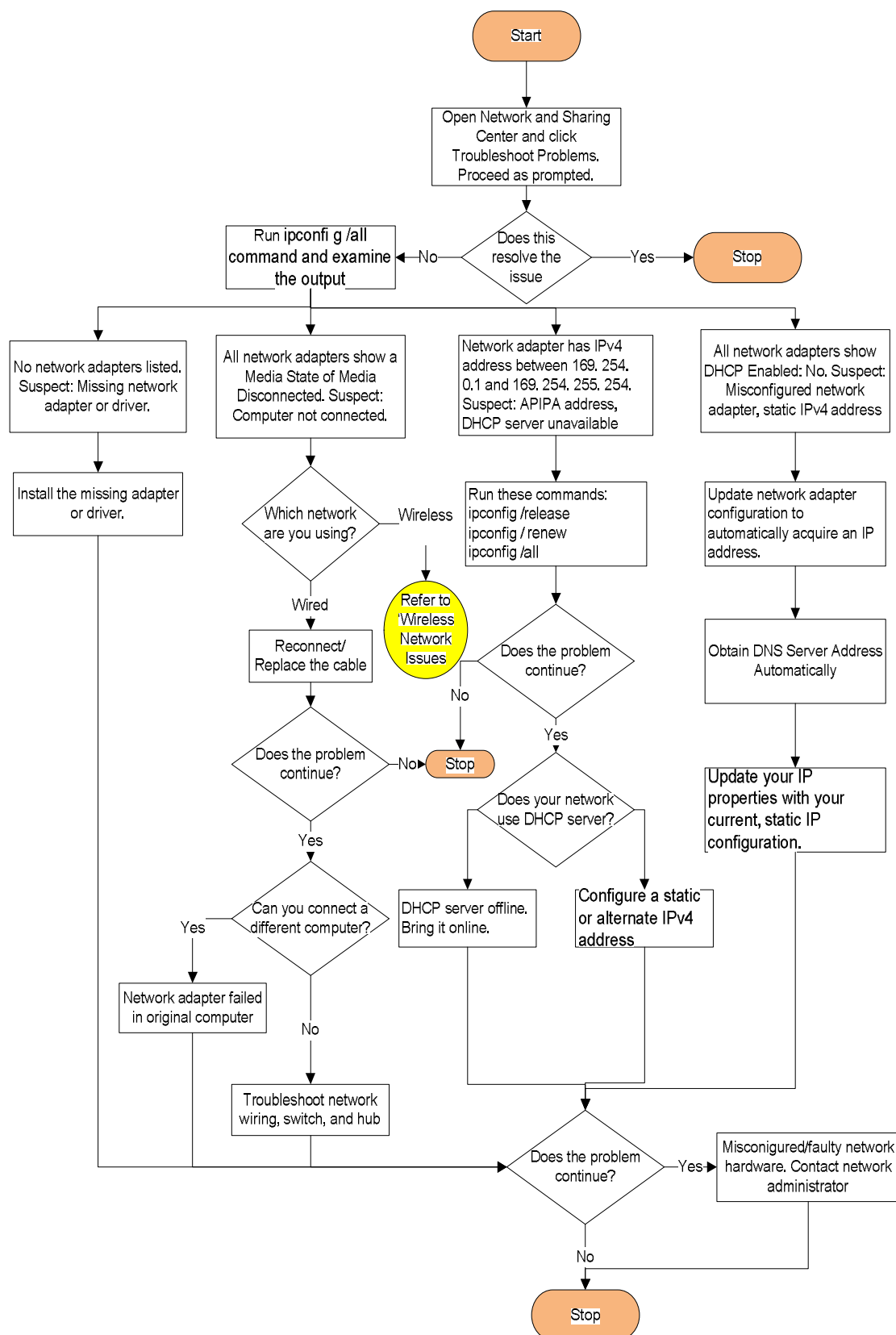
Utility	Purpose
Get MAC Address (Getmac.exe)	Discovers the Media Access Control (MAC) address and lists associated network protocols for all network cards in a computer, either locally or across a network.
Hostname (Hostname.exe)	Displays the host name of the current computer.
IP Configuration Utility (Ipconfig.exe)	Displays all current Transmission Control Protocol/Internet Protocol (TCP/IP) network configuration values, and refreshes Dynamic Host Configuration Protocol (DHCP) and DNS settings.
Name Server Lookup (Nslookup.exe)	Displays information about Domain Name System records for specific IP addresses and/or host names so that you can troubleshoot DNS problems.
Net services commands (Net.exe)	Performs a broad range of network tasks. Type net with no parameters to see a full list of available command-line options.
Netstat (Netstat.exe)	Displays active TCP connections, ports on which the computer is listening, Ethernet statistics, the IP routing table, and IPv4/IPv6 statistics.
Network Command Shell (Netsh.exe)	Displays or modifies the network configuration of a local or remote computer that is currently running. This command-line scripting utility has a huge number of options, which are fully detailed in Help.
PathPing (Pathping.exe)	Combines the functions of Traceroute and Ping to identify problems at a router or network link.
TCP/IP NetBIOS Information (Nbtstat.exe)	Displays statistics for the NetBIOS over TCP/IP (NetBT) protocol, NetBIOS name tables for both the local computer and remote computers, and the NetBIOS name cache.
TCP/IP Ping (Ping.exe)	Verifies IP-level connectivity to another internet address by sending Internet Control Message Protocol (ICMP) packets and measuring response time in milliseconds.
TCP/IP Route (Route.exe)	Displays and modifies entries in the local IP routing table.
TCP/IP Traceroute (Tracert.exe)	Determines the path to an internet address, and lists the time required to reach each hop. It's useful for troubleshooting connectivity problems on specific network segments.



Check Your Understanding

1. What is the utility used to display and modify network configuration?
2. What is the utility that verifies IP-level connectivity to another Internet address by sending ICMP measuring response time in milliseconds?
3. What is the full form of ICMP?
4. What is the function of Pathping.exe command?

Troubleshooting Connectivity Problems Manually



Common reasons for network connectivity issues are:

- Misconfigured network adapter
- Misconfigured network hardware
- Failed network connection
- Faulty network cables
- Failed network adapter
- Failed network hardware

To identify the source of a connectivity problem without using Windows Network Diagnostics, follow these steps and answer the questions until you are directed to a different section:

1. Click the **networking notification** icon in the system tray, and then click **Open Network and Sharing Center**.
 - a. If a red X is displayed over a network link, click the link to start Windows Network Diagnostics and follow the prompts that appear. If the red X is between the network and the Internet, the problem is with the Internet connection and not the local computer. Contact the network administrator for assistance.
 - b. If no network adapters appear, a network adapter isn't present, network adapters are disabled, the hardware has failed, or the driver is not functioning. Re-enable any disabled network adapters. If the problem persists, restart the computer. If the network adapter is still not available, use Device Manager (Devmgmt.msc) to diagnose the problem. If possible, update the driver using Microsoft Update or by checking the network adapter vendor's Web site.
2. Can other computers connect to the same network? If not, the problem is with the network and not the computer you're troubleshooting.
3. Can you connect to other network resources?
4. Open a command prompt and run `ipconfig /all`. Examine the output:
 - a. If the computer has an IP address in the range 169.254.0.0 through 169.254.255.255, the computer is configured to use DHCP addressing but a DHCP server was not available.
 - b. If you have a valid IP address but do not have a default gateway or a DNS server, the problem is caused by an invalid IP configuration. If the computer has a DHCP-assigned IP address, run `ipconfig /release` and `ipconfig /renew` from an administrative command prompt. If the computer has a manually configured IP address, obtain the correct configuration from a network administrator.
 - c. If no network adapters are listed, the computer either lacks a network adapter or (more likely) it does not have a valid driver installed. Use Device Manager to identify the network adapter and then install an updated driver. If the hardware has failed, replace the network adapter (or add a new network adapter if the network adapter is built in).
 - d. If all network adapters show a Media State of Media Disconnected, the computer is not physically connected to a network. Connect the computer to a wired or wireless network. If you are connected to a wired network and you

still see this error, disconnect and reconnect both ends of the network cable. If the problem continues, replace the network cable. Attempt to connect a different computer to the same network cable; if the new computer can connect successfully, the original computer has a failed network adapter. If neither computer can connect successfully, the problem is with the network wiring, the network switch, or the network hub. Replace the network hardware as necessary.

- e. If all network adapters show DHCP Enabled: No in the display of the Ipconfig /all command, the network adapter might be misconfigured. If DHCP is disabled, the computer has a static IPv4 address, which is an unusual configuration for client computers. Update the network adapter IPv4 configuration to obtain An IP Address Automatically and Obtain DNS Server Address Automatically. Then, configure the Alternate Configuration tab of the IP Properties dialog box with the current static IP configuration.
5. If you have a valid IP address and you can ping your default gateway, open a command prompt and run the command "Nslookup <servername>." If Nslookup cannot resolve a valid name and does not display an answer similar to the following, you have a name resolution problem.



Check Your Understanding

1. What can be the common reasons for network connectivity issues?
2. How will you identify the source of a connectivity problem without using Windows Network Diagnostics?

Troubleshooting APIPA Address Issues

Computer uses APIPA address that ranges between 169.254.0.0 and 169.254.255.25, when it is configured to use automatic IP addressing but cannot connect DHCP server. APIPA addresses allow computers connected to a LAN without a DHCP server to communicate; however, they do not allow the computers to connect to non-APIPA computers.

Reasons of APIPA address issue:

- The DHCP server was temporarily unavailable.
- The computer was not connected to the network properly.
- The computer was not authorized to connect to the network.

To solve these issues, follow the below methods in sequence until the problem is resolved:

1. Use Windows Network Diagnostics
2. Verify the connectivity to the local network and that the network hardware is functioning properly.
3. Attempt to retrieve an IP address from a DHCP server by running the following two commands:
 - ipconfig /release
 - ipconfig /renew
4. If the above steps fail and you are connected to the network, the DHCP server is either offline or has determined that your computer is not authorized to connect to the network. Bring a DHCP server online and then restart the computer. If the network does not use a DHCP server, configure a static or alternate IPv4 address provided by your network administrator.

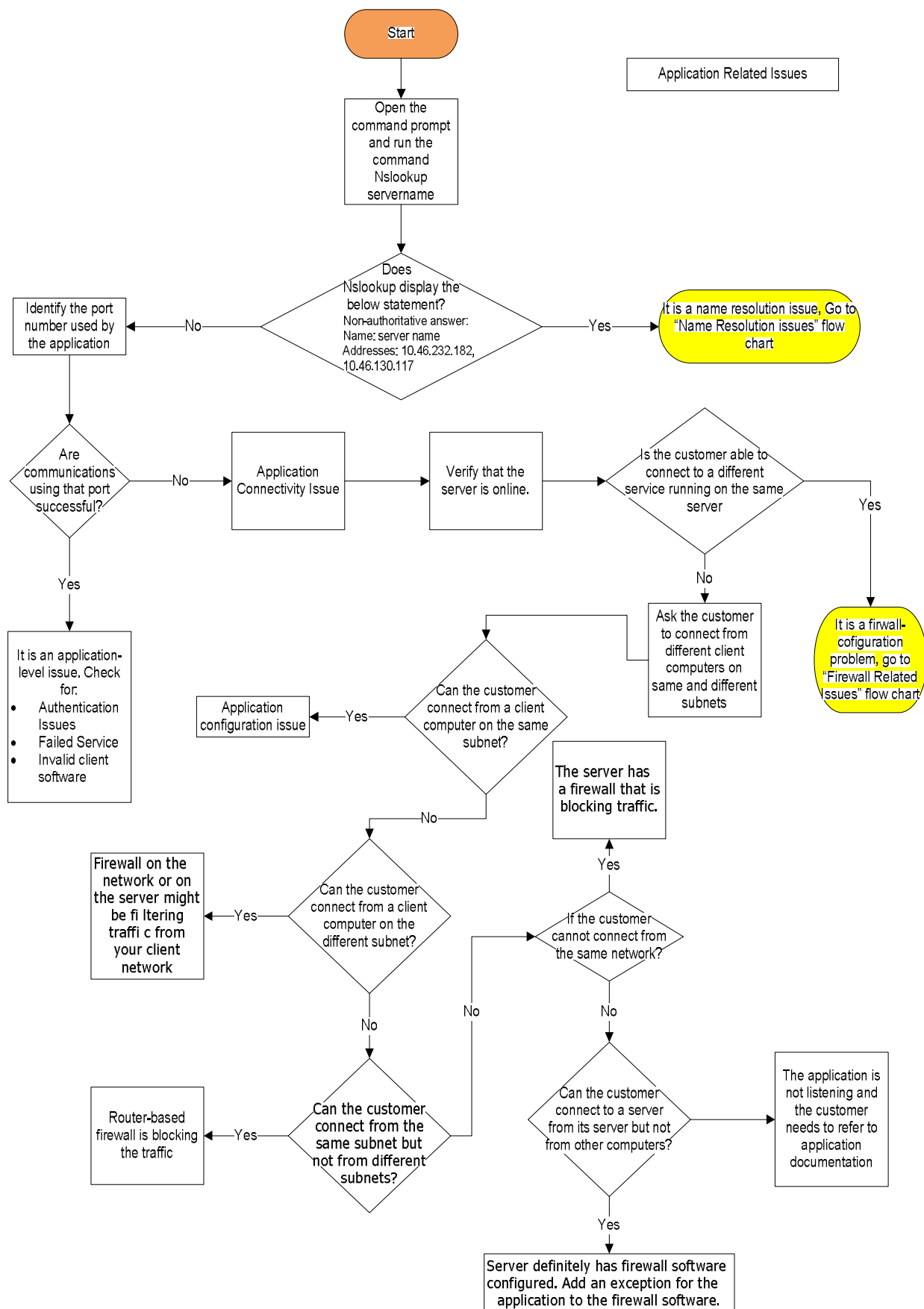
Troubleshooting Application Connectivity Issues

If one application (or network protocol) works correctly but others don't, it is an application connectivity issue. To troubleshoot, follow these steps:

1. Use Nslookup to query the server name you are trying to contact. If Nslookup cannot resolve the name, it is a name resolution problem.
2. Often, a firewall might block your application's communications. Before you can test this, identify the network protocol and port number used by the application.
If you are not sure which port numbers your application uses, consult the application's manual or contact the technical support team. Often, searching the Internet for the phrase "<application_name> port number" identifies the required port numbers. Sometimes, administrators change port numbers to nonstandard values. If that is the case, you will need to ask the administrator for the new port number.
3. Test whether you can connect manually to that port on the server. If it is a TCP port, you can use either PortQry or Telnet. To test a TCP port with Telnet (which is available if you turn on the Telnet Client feature by using the Turn Windows Features On Or Off tool in Control Panel), run the following command:
Telnet <hostname_or_address> <TCP_port>
4. If the command prompt clears or if you receive text from the remote service, you successfully established a connection, which means you do not have an application connectivity problem. Instead, you might have an authentication problem or there might be a problem with the client or server software.
5. If Telnet displays "Could not open connection to the host," this verifies that you do indeed have an application connectivity issue. Either the server is offline or a misconfigured firewall is blocking the application's network traffic. Follow these steps to continue troubleshooting the problem:
 - a. Verify that the server is online by connecting to a different service running on the same server. For example, if you are attempting to connect to a Web server and

you know that the server has File Sharing enabled, attempt to connect to a shared folder. If you can connect to a different service, the problem is almost certainly a firewall configuration problem on the server. If you don't know that another service is running on the server, contact the server administrator to verify that it's running.

Attempt to connect from different computers on the same and different subnets. If you can connect from a computer on the same subnet, the problem is caused by a firewall or application configuration problem on your computer. Verify that a firewall exception is created either for your application or for the port numbers it uses. If you can connect from a client computer on a different subnet but not from the same subnet, a firewall on the network or on the server is probably filtering traffic from your client network. Contact a network administrator for assistance.





Check Your Understanding

1. What can be the reasons of APIPA address issue? How can you resolve them?
2. What are steps to resolve application connectivity issue?

Network Protocol and Port Numbers

Service Name or Task	UDP	TCP
Web servers, HTTP, and Internet Information Services (IIS)		80
Web servers that use Hypertext Transfer Protocol Secure (HTTPS)		443
File Transfer Protocol (FTP) servers		20,21
DNS queries	53	53
DHCP client		67
File and printer sharing	137	139, 445
Internet Relay Chat (IRC)		6667
Incoming e-mail: Internet Mail Access Protocol (IMAP)		143
Incoming e-mail: IMAP (Secure Sockets Layer [SSL])		993
Incoming e-mail: Post Office Protocol 3 (POP3)		110
Incoming e-mail: POP3 (SSL)		995
Outgoing e-mail: Simple Mail Transfer Protocol (SMTP)		25
Connecting to an Active Directory Domain Services (AD DS) domain controller	389, 53, 88	135, 389, 636, 3268, 3269, 53, 88, 445
Network Management: Simple Network Management Protocol (SNMP)	161, 162	
SQL Server		1433
Telnet		23
Terminal Server, Remote Desktop, and Remote Assistance		3389
Virtual Machine Remote Control (VMRC) client		5900

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for Microsoft Virtual Server 2005 R2		
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Troubleshooting Name Resolution Issues

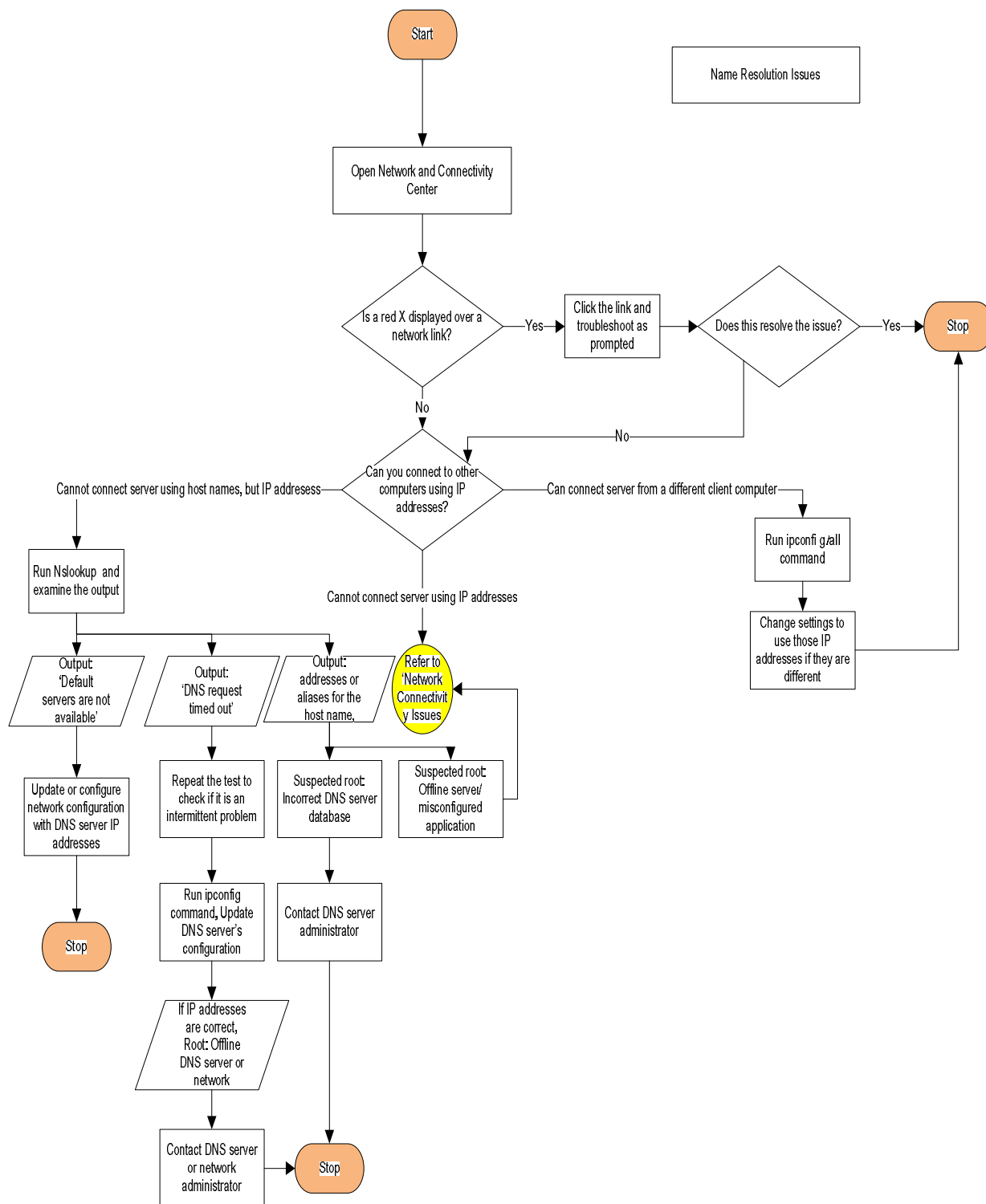
Before two computers can communicate, the client must translate the server's host name to an IP address. This translation is called name resolution. Most of the time, a DNS server performs name resolution and returns the IP address to the client computer.

Use Windows Network Diagnostics as your first troubleshooting step. If this fails, verify that the computer is connected to the local network and then perform these steps:

1. Verify that you can connect to other computers using IP addresses. If not, the issue is network connectivity rather than name resolution. To test this, run the command `ipconfig`. Make note of the default gateway. Then, attempt to ping the default gateway.

If you receive replies, you are connected to the network and your problem is a name resolution issue otherwise, you might not connect to the network. Before troubleshooting the problem as a name resolution problem, verify that the computer is connected properly to the local network.

2. Use Nslookup to look up the host name you are attempting to contact. Examine the output by using the following criteria:
 - a. If Nslookup resolves the name, name resolution isn't the problem. However, the server might be offline, a firewall might be blocking your traffic, the program you're using might be misconfigured, or the DNS server database is incorrect and returning an invalid IP address.
 - b. If Nslookup displays only "DNS request timed out" (and doesn't later resolve the name), your DNS servers are not responding. First, run Nslookup again to make sure it's not an intermittent problem. Then, verify that your computer has the correct IP addresses listed for the DNS servers. If the DNS server IP addresses are correct, the DNS servers or the network they are connected to is offline.





Check Your Understanding

1. What is the full form of IRC, SSL, IMAP, and POP3?
2. How can you resolve name troubleshooting issues?

Troubleshooting Wireless Network Issues

Some of the common wireless network problems include the following:

- **Network adapter cannot see any wireless networks:** It can occur if network adapter is turned off at the hardware level. Use Device Manager to verify that your wireless network adapter was detected and has a valid driver.
- **Weak wireless signal:** Things to improve the range of a wireless signal:
 - Move the wireless access point away from metal cabinets, computers, or other objects that might block the wireless signals.
 - If attempting to connect from outdoors, remove screens from windows.
 - Adjust the antenna on the wireless access point. For greatest efficiency, have someone slowly move the wireless access point antenna while a second person monitors the signal strength from a computer at the target location.
 - Use a high-gain antenna.
 - Increase the power at the transmitter.
 - Increase the power at the client computer.
- **Windows cannot reconnect to a wireless network:** Security settings on the network might have changed. Remove the wireless network profile and connect to the network as if it were a new network.

Troubleshooting when you cannot view some websites

Possible causes are:

- Your browser could be attempting to connect through a proxy server. If so, try connecting with the proxy server turned off.
- Your browser connection settings could be incorrect. To change connection settings, follow these steps:
 1. Open Internet Options by clicking the Start button, clicking Control Panel, clicking Network and Internet, and then clicking Internet Options.
 2. Click the Connections tab.
- Your router could be attempting to proxy DNS requests and failing. Refer to the documentation that came with your router for instructions on disabling DNS proxy.

- Parental Controls, Family Safety, or some other parental control software could be blocking access to certain websites.

Troubleshooting File and Printer Sharing

Possible causes for such issues are:

- **You haven't created or joined a homegroup:** To solve the issue, create or join a homegroup.
- **You're not using a homegroup, and the folder or printer you're trying to access has not been shared:** Use a HomeGroup to share files and printers or turn on file and printer sharing and set sharing properties on the item (or move it one of the public folders).
- **Network Discovery is turned off:** Turn network discovery on.



Check Your Understanding

1. List three common wireless network problems.
2. You are unable to view few sites. What can be the possible causes?

Week 5

Week Objectives:

By the end of this week, you will learn:

Day-1

Email Clients

- Discuss different email clients
- Discuss system requirements for different email clients
- Discuss terminologies related to email client applications
- Configure e-mail account settings
- Configure email clients for Newsgroups
- Third Party e-mail client account settings configuration
- Email Account Migration
- How to take backup & restore
- Troubleshooting common issues

Day-2

Microsoft Office

- Introduction to Microsoft Office
- Installation and Un-installation of Microsoft Office
- Repairing MS Office installation
- Support Boundaries
- Configuring and troubleshooting Office applications

Day-3

CD/DVD Burning Applications

- Supported Software (Nero Burning ROM, Roxio Easy CD Creator, Nero Express, ImgBurn)
- Support Boundaries
- Installation/Un-installation of the software
- Working with the Burning application software.
- Configure and troubleshoot common issues.
- FAQs

Digital Cam

- Help connect the right cables and connectors
- Install / update the latest drivers, software & updates for Digital Camera
- Installing the software and sync the Digital Camera with the PC

Mp3 Player

- Install / Update the latest software & updates
- Scan & remove device conflicts with any other devices during Setup
- Installing the software and sync MP3 player with the PC

Day-4

Managing Local and Network Printers

- Discuss printer terminology
- Explain the printing process for local and network printers.
- Connect to local and network print devices
 - Install a local printer.
 - Configure and manage local printing
 - Install a network printer (wired & wireless)
 - Connect to and manage printing to a network-based printer
 - Manage print jobs.
- Print Permissions
 - Identify basic and advanced print permissions.
 - Identify default print permission assignments.
 - Calculate effective print permissions.
 - Sharing a Printer
 - Share a printer.
 - Connect to a shared printer.
- Troubleshoot printers
 - Troubleshooting Print Driver issues
 - Troubleshooting Printers and Printing Issues

Day-5

Security Software

- Different types of security threats
- Types of security software available to protect users from these threats
- Architecture of Anti-Virus software & configuration
- Architecture of Anti-Spyware software & configuration
- Architecture of Firewall software & configuration
- Different security software supported by iYogi and their features
- Troubleshooting
 - Manually removing virus
 - Manually removing spywares
 - What to do when anti-virus reports a false positive
 - What to do when an anti-virus is unable to update itself
 - Post Installation issues and troubleshooting

Day 1: Email Clients

Module Objectives:

By the end of this module you will understand:

- Types of Email Clients
- Comparison between different Email Clients
- System Requirements to install different email clients
- Email Terminology
- Configuring Email Accounts and News Group
- Managing Email Clients
- Printing Email Messages
- Troubleshooting Email Clients

Email Clients

A program which helps to send and receive the mails without accessing the emails via webpage, it automatically downloads the new mails to your system. Email Clients has more features in comparison of web interface.

Some of the commonly used Email Clients are:

- MS Outlook
- Outlook Express
- Windows Mail
- Thunderbird
- Eudora
- Apple Mail
- Spice Bird
- Opera Mail
- Incredimail
- Microsoft Entourage

Email Clients – Comparison

Features	Outlook 2003	Outlook Express	Outlook 2007
Connectivity to Microsoft Exchange	Yes	No	Yes
Out of Office Assistant	Yes	No	Yes
Multiple address books.	Yes	No	Yes
Fully integrated Calendar related activities	Yes	No	Yes
Reminders for e-mail messages, calendar events, tasks etc.	Yes	No	Yes
Information Rights Management (IRM)	Yes	No	Yes
Integration with Windows SharePoint sites.	Yes	No	Yes
Supports backup	Yes	No	Yes
Email editor for additional formatting and style options.	Yes	No	Yes
Allows to organize the items	Yes	No	Yes
Multiple calendars view and drag items between the calendars.	Yes	No	Yes
Supports tasks folder	Yes	No	Yes
Junk e-mail message filter.	Yes	No	Yes
Notes folder (Sticky Notes)	Yes	No	Yes
Supports NNTP	No	Yes	Yes
Shared workspace integration	No	No	Yes
SharePoint integration	Yes	No	Improved
SharePoint lists	No	No	Yes
Task request	Yes	No	Yes

Comparison between MS Office 2007 Suites:

Applications	Basic	Home and Student	Standard	Small Business	Professional	Ultimate	Professional Plus	Enterprise
Word	✓	✓	✓	✓	✓	✓	✓	✓
Excel	✓	✓	✓	✓	✓	✓	✓	✓
Outlook	✓	x	✓	✓	✓	✓	✓	✓
Business Contact Manager	x	x	x	✓	✓	✓	x	x
OneNote	x	✓	x	x	x	✓	x	✓
PowerPoint	x	✓	✓	✓	✓	✓	✓	✓
Publisher	x	x	x	✓	✓	✓	✓	✓
Accounting Express	x	x	x	✓	✓	✓	x	x
Access	x	x	x	x	✓	✓	✓	✓
InfoPath	x	x	x	x	x	✓	✓	✓
Groove	x	x	x	x	x	✓	x	✓
Communicator	x	x	x	x	x	x	✓	✓

Email Clients – System Requirements

Application Name	Processor	Memory	Space Required	Operating Systems	Remarks
MS Outlook 2007	500 MHz or Higher	256 MB or Higher	1.5 GB	Windows XP SP2 or later	Internet Fax not available on 64 bit OS
MS Outlook with BCM	1 GHZ or Higher	512 MB or Higher	2 GB	Windows XP SP2 or later	Internet Fax not available on 64 bit OS
MS Outlook 2003	233 MHz or Higher	128 MB or Higher	150 MB	Windows 2000 SP3 or later	For additional items, it requires PII with 400 MHz or higher with 200 MB of additional space
Windows Mail	800 MHz for Vista & XP 1 GHz for Win 7	128 MB of XP & Vista 512 MB for Win 7	-	Windows XP SP2 or later	-
Outlook Express 6	233 MHz	64 MB	-	Windows XP or later	Requires .Net Framework version 1.1



Check Your Understanding

1. Explain any 5 differences between Outlook Express and MS Outlook 2003?
2. Explain any 5 differences between Outlook Express and MS Outlook 2007?
3. Explain any 5 differences between MS Outlook 2003 and MS Outlook 2007?

4. Name the MS Office 2007 suits launched by Microsoft?
5. Tell any 3 differences between MS Office 2007 Professional and Professional Plus?
6. What do you understand by Business Contact Manager?
7. What are the system requirements to install MS Outlook 2007 on a system having Windows 7 operating system?
8. What are the system requirements to install Business Contact Manager with MS Outlook on a system having Windows XP operating system?
9. Which operating system is not compatible for using Internet Fax feature in MS Outlook 2007?

Email Terminology

The commonly used terms for email clients are:

- **OST (Offline Storage Files):** An OST file (.OST) is an offline folder file in Microsoft Outlook. Offline folders make it possible for the user to work offline and then to synchronize changes with the Exchange server the next time they connect. The ability to work offline is useful in environments with limited or unreliable connectivity.
- **EML (Outlook Express Electronic Mail):** These file extensions are primarily used for e-mail files that are created by using RFC standards, it contains text and attachments.
- **MBX (Mailbox):** It is used to backup the emails and save them to different folders. Outlook Express uses separate file for each mailbox folder when saved as DBX files, like- inbox files are saved as Inbox.dbx and sent item files are saved as Sent Items.mbx etc.
- **DBX (Database Extension):** This file extension is used by Outlook Express 5.x and 6.x to store email messages. For instance, Inbox.dbx is the file containing messages of Inbox folder. All the files are consisted in a single root folder called Store Folder also known as Store Root. The Folders.dbx file serves as the master index file for the entire store.
- **PST (Personal Storage Table):** This file extension is associated with Personal Folders used within certain Microsoft Products. They are used to store local copies of messages, calendar events, and other items within Microsoft.
- **HTTP Email Accounts:** These types of email accounts can be accessed via internet browser application and you can also configure the email client's software like- Outlook, Outlook Express etc. to check your mails. For this you need the following information from your ISP:
 - Username
 - Password
 - SMTP Settings & Port Number
 - POP3 Settings & Port Number

- **HTTPS Email Accounts:** These types of email accounts work same as HTTP accounts the only difference is that they work on Secured Socket Layer (SSL) settings.
- **IMAP (Internet Message Access Protocol):** Is a standard protocol for accessing e-mail from your local server. IMAP is a client/server protocol in which e-mail is received and held for you by your Internet server. As this requires only a small data transfer this works well even over a slow connection such as a modem.
- **The POP (Post Office Protocol 3):** protocol provides a simple, standardized way for users to access mailboxes and download messages to their computers. When using the POP protocol all your email messages will be downloaded from the mail server to your local computer.
- **POP (Post Office Protocol):** This technology is used to communicate the email between the computers using internet & email server. When a person sends a mail it is transmitted over internet and lands on email server.
- **The SMTP (Simple Mail Transfer Protocol):** protocol is used by the Mail Transfer Agent (MTA) to deliver your email to the recipient's mail server. The SMTP protocol can only be used to send emails, not to receive them. Depending on your network / ISP settings, you may only be able to use the SMTP protocol under certain conditions.
- **NNTP (Network News Transfer Protocol):** The NNTP protocol is the delivery mechanism for the newsgroup service. It runs on the Internet and other TCP/IP-based networks and provides a way to exchange messages, articles, and bulletins throughout the Internet. Articles are put in central databases throughout the Internet and users access the database to get the articles they need.



Check your understanding

1. What do you understand by the following?
 - PST
 - IMAP
 - POP
 - NNTP
 - SMTP

Configuring Email Accounts

Outlook Express

Steps to Configure Email Account in Outlook Express:

1. Open **Outlook Express** Application
2. Click on **Tools** at the Top and then click on **Accounts**
3. Click **Add** button on the right side and then click **Mail**

4. Type the Display Name and then click **Next** button
5. Type the Email Address and then click **Next** button
6. Enter the **POP3** and **SMTP** settings and then click **Next** button
7. Enter the Account Name, Password and check the box "Remember Password" and then click **Next** button
8. Click **Finish** to close the account configuration wizard
9. Now **select** the email account and then click **Properties** on the right side of the dialog box
10. Under **General Tab** ensure that the Name and the Email Address are correct
11. Under **Servers Tab** ensure that POP3, SMTP settings, Account Name and Password are correct
12. Under **Connection Tab** ensure that the appropriate type of internet connection is selected
13. Under **Advanced Tab** ensure that SMTP and POP3 port numbers are correct
14. Click **OK**, to complete email account configuration process

Windows Mail

1. Open **Windows Mail** Application
2. Click **Tools** at the Top and then click on **Accounts**
3. Click **Add** button on the right side and then click **Email Account**, click **Next** button to continue
4. Type the Display Name and then click **Next** button
5. Type the Email Address and then click **Next** button
6. Enter the POP3 and SMTP settings and then click **Next** button
7. Enter the Account Name, Password and check the box "Remember Password" and then click **Next** button
8. Click **Finish** to close the account configuration wizard

MS Outlook 2003

1. Open **MS Outlook 2003** Application
2. At the Top click **Tools** and then **Accounts**
3. Select **Add a New Email Account** and then click **Next** button
4. On the new dialog box select the Server to download the emails and then click **Next** button
5. Enter Your Name, Email Address, SMTP, POP3 settings, User Name and the Password and then click **Next** button
6. Now it will test the configuration settings and will display a successful message. If settings are not good then it will display an error message.
7. To Enter the **SMTP** and **POP3** port number click **More Settings** button
8. Under **General Tab** ensure that the Name and the Email Address are correct
9. Under **Servers Tab** ensure that POP3, SMTP settings, Account Name and Password are correct
10. Under **Connection Tab** ensure that the appropriate type of internet connection is selected

11. Click **Advanced Tab** on the new dialog box and then type the required port numbers, click **Ok** to close the dialog box
12. Click **Finish** to complete the email account configuration

MS Outlook 2007

1. Open **MS Outlook 2007** Application
2. At the Top click **Tools** and then **Accounts Settings**
3. Click **New** at Top Left of the Accounts Settings Window
4. On the new dialog box enter Your Name, Email Address, and the Password and then click **Next** button
5. Now it will test the configuration settings and will display a successful message. If settings are not good then it will display an error message.
6. To Enter the SMTP and POP3 port number check the box "**Manually Configure Server Settings**" and then click **Next** button
7. Select **Internet Email Account** and then click **Next** button
8. Enter Your Name, Email Address, Account Type, SMTP and POP3 settings, Username and the Password. Select the box "Remember Password and then click **Next** button
9. It will reconfirm the settings
10. Click **Finish** button to complete the email account configuration

Eudora

Method 1

1. When you open Eudora for the first time it prompts to make it as default email program, click **Yes** to continue
2. Click **Enter Code** button and type the Activation code
3. Click **Next** button to continue
4. Select Brand New Email Account and then click **Next** button
5. Enter the Name and then click **Next** button
6. Enter the email address and then click **Next** button
7. Enter the Username and then click **Next** button
8. **Select** POP or IMAP whichever is applicable, enter the settings and then click **Next** button
9. Enter the SMTP settings and check the box "**Allow Authentication**", if your ISP settings require authenticating before sending the mail then click **Next** button
10. Click **Finish** to complete the email account configuration process

Method 2

1. Open **Eudora Application** and then click **Tools** at the top of the window
2. Click **Options** from the menu
3. Enter the required details and then click **OK** to configure the email account

Incredimail XE

Method 1

1. For the first time when you open **Incredimail XE** Application. It displays the email configuration wizard
2. Enter the Name, Age and Country details and then click **Next** button
3. Again click **Next** button on the new window to continue
4. Enter the Name and Email Address and then click **Next** button
5. Select the **Incoming Mail Server** Type and enter the POP3 and SMTP settings and then click **Next** button
6. Enter the Username and the Password and then click **Finish** button

Method 2

1. Open **Incredimail XE** Application and then click **Tools** at the top of the window and then click **Account** from the menu
2. Click **Add** button on the new dialog box and then click **Next** button
3. Enter the Name, Age and Country details and then click **Next** button
4. Again click **Next** button on the new window to continue
5. Enter the Name and Email Address and then click **Next** button
6. Select the **Incoming Mail Server** Type and enter the POP3 and SMTP settings and then click **Next** button
7. Enter the Username and the Password and then click **Finish** button

Configuring Newsgroup

Steps to configure the Newsgroup in Outlook Express:

1. Open **Outlook Express** Application
2. Click **Tools** at the top of the screen and then click **Options** from the menu
3. On the Options dialog box click **Read tab**, check the box "Automatically download the messages when viewing in the preview pane"
4. Under News section check the box "Get 1000 headers at a time". Click **OK**, to save the changes
5. Now again click **Tools** and then click **Accounts** on the top of the Outlook Express screen
6. Click **Add** button on the new dialog box and then click **News** option
7. Enter your name on the new dialog box and then **Next** button.
8. Enter the **email address** and then click **Next** button.
9. Enter the **NNTP server address** and then click **Next** button.
10. Enter the Account Name and the Password and then click **Next** button.
11. It will display the message of successfully creating the account. Click **Finish** button to complete the configuration process.
12. On the Internet Accounts dialog box select the newsgroup account and then click **Properties** button.

13. It will display a new dialog box, Under **General Tab** ensure that the News account and User information is correct
14. Under **Server Tab**, check the server details, Account Name and Password. If your ISP settings require authentication then check the box "This server requires me to login". Check the box to remember the password.
15. Under **Advanced Tab**, check the port number for NNTP, and define the news settings like- break if message is larger than 16 KB, select to view as Plain Text/HTML and so on.
16. Click **OK**, to save the changes
17. Now it will prompt to download the newsgroup from the news account, click on **Yes** button

Managing Newsgroup

If you wish to add or remove the newsgroup then **right click** the news.iYogi.net folder and then click **Newsgroups** from the right click menu

It will display a new dialog box, here you can subscribe or unsubscribe the newsgroup from the list. Click **OK**, to save the changes.

Click **News Server** in the left hand pane (Tree View) and then click "**Synchronize Account**" button.



Check your understanding

1. Write the steps to configure an email account by using below details:
 - Outlook Express
 - Windows Mail
 - MS Outlook 2007
 - Eudora
 - Incredimail XE

Configuration Details

- Username: iYogi
- Password: iYogi\$123456
- SMTP Port: 25
- POP3 Port: 110
- SMTP Address: abc.smtp.net
- POP3 Address: abc.pop3.net

Managing Email Clients

Outlook Express

Add an Identity

When different people use Outlook express on the same system they need to have separate messages, contacts and personal settings, we need to create separate Identity for separate account.

How to create Identity

1. Click **File** menu and click **Identities**.
2. Click on **Add Identity**.
3. Type name in the Type your name field box.
4. You can set password for your Identity by checking Require a password checkbox.
5. Type your desired password in New Password field.
6. Re-enter password in Confirm New Password field.
7. Click **OK**.

Click **Yes** if you want to use the new Identity right now or else click **No**.

To switch between different Identities

1. Click **File** menu and click **Switch Identity**.
2. If a password is set for the Identity, Type the password in Password field.

Create or Modify Identities

1. Click **File** menu and click **switch Identity**
2. Click on **Manage Identities**.
3. This will open Identity manager, you can modify, create new and change default identities.

Log off an Identity

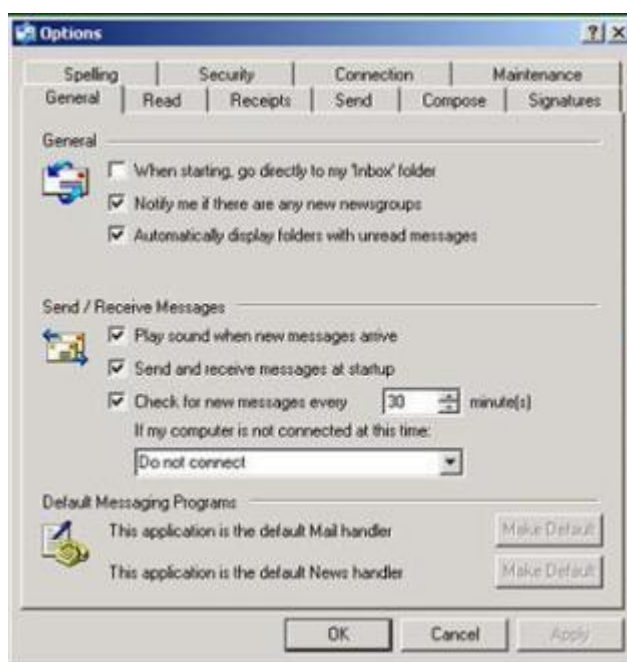
1. Click **File** menu and click **switch Identity**
2. Select the current identity and click **Log Off Identity**.
3. Click **Yes** when prompted.

Set an Identity as the default Identity

1. Click **File** menu and click **Switch Identity**.
2. Click **Manage Identities**.
3. Check the checkbox against Use this identity when starting a program.
4. Choose the identity to set as default and click **OK**.

Customizing the settings by using Options Dialog

Here you can use some advance options which are helpful while using Outlook Express like adding signatures, looking for the path where the mails are been stored etc.



1. Open **Outlook Express** Application
2. Click **Tools** and then click **Options**
3. This will display a new Options dialog box with several Tabs at the top:
 - **General-** This tab provides general settings options like- play a sound on receiving new mails, Notify for any new newsgroup, even you can define the time for OE to check for new mails by default it is 30 minutes.
 - **Read-** Here you can customize the settings how to read mails like- after displaying a new mail it mark it as a read mail after 5 seconds, OE by default can download 300 header at a time you can change these settings, even you can change the font type and size to read a mail.

- **Receipts-** Here you can request for a read receipts for all mails sent, returning of read receipts and for secured receipts for digitally signed messages.
- **Send-** Here you can define the settings to send a mail like- saving a copy of sent messages in "Sent Items" folder. Automatically save the address in address book for the mails you reply, beside this you can define plain text and HTML settings.
- **Compose-** It allows defining the settings to compose a mail like- font type and size, background layout, adding a business card, adding layout for mails in HTML format.
- **Signatures-** This is the most commonly used tab as it allows adding signatures in a mail.
- **Spelling-** It checks for spelling before sending a mail even allows customizing the dictionary.
- **Security-** It checks for any virus or security zone level, it also gives an option not to open attachments, if this option is checked than you will not able to open attachments in a mail.
- **Connection-** This is mainly used for dialup connections settings like- disconnect the internet after downloading the mails etc.
- **Maintenance-** It allows compacting the mails and folder to save the disk space. It also allows changing the path or folder where OE mails are stored.

Copying message files to a backup folder

1. Start **Outlook Express**.
2. Click **Tools**, and then click **Options**.
3. On the **Maintenance tab**, click **Store Folder**.
4. In the Store Location dialog box, copy the store location. To do this, follow these steps:
 - a. Put the mouse pointer at one end of the box under the Your personal message store is located in the following folder box.
 - b. Press and hold the left mouse button, and then drag the mouse pointer across the Your personal message store is located in the following folder box.
 - c. Press **CTRL+C** to copy the location.
5. Click **Cancel**, and then click **Cancel** again to close the dialog box.

Copying the contents of the Store folder

1. Click **Start**, click **Run**, press **CTRL+V**, and then click **OK**.
2. On the **Edit** menu, click **Select All**.
3. On the **Edit** menu, click **Copy**, and then close the window.

Creating a backup folder

1. **Right-click** any empty area on your desktop, click **New**, and then click **Folder**.
2. Type Mail Backup for the folder name, and then press **ENTER**.

Pasting the contents of the Store folder into the backup folder

1. Double-click the **Mail Backup folder** to open it.
2. Right-click inside the **Mail Backup folder** window, and then click **Paste**.

Exporting the Address Book to a .CSV file

1. On the **File** menu, click **Export**, and then click **Address Book**.
2. Click **Text File** (Comma Separated Values), and then click **Export**.
3. Click **Browse**.
4. Select the **Mail Backup folder** that you created.
5. In the File Name box, type address book backup, and then click **Save**.
6. Click **Next**.
7. **Click** to select the check boxes for the fields that you want to export, and then click **Finish**.
8. Click **OK**, and then click **Close**.

Exporting the mail account to a file

1. On the **Tools** menu, click **Accounts**.
2. On the **Mail tab**, click the mail account that you want to export, and then click **Export**.
3. In the Save In box, select the Mail Backup folder, and then click **Save**.
4. Repeat these steps for each mail account that you want to export.
5. Click **Close**.

Exporting the newsgroup account to a file

1. On the **Tools** menu, click **Accounts**.
2. On the **News tab**, click the news account that you want to export, and then click **Export**.
3. In the Save In box, select the Mail Backup folder, and then click **Save**.
4. Repeat these steps for each news account that you want to export.
5. Click **Close**.
6. Back to the top

Importing messages from the backup folder

1. On the **File** menu, point to Import, and then click **Messages**.
2. In the Select an e-mail program to import from box, **click** Microsoft Outlook Express 5 or Microsoft Outlook Express 6, and then click **Next**.
3. Click **Import mail** from an OE5 store directory or Import mail from an OE6 store directory, and then click **OK**.
4. Click **Browse**, and then click the **Mail Backup folder**.
5. Click **OK**, and then click **Next**.
6. Click **All folders**, click **Next**, and then click **Finish**.

Importing the Address Book file

1. On the **File** menu, click **Import**, and then click **Other Address Book**.
2. Click **Text File** (Comma Separated Values), and then click **Import**.
3. Click **Browse**.
4. Select the **Mail Backup folder**, click the **address book backup.csv** file, and then click **Open**.
5. Click **Next**, and then click **Finish**.
6. Click **OK**, and then click **Close**.

Importing the mail account file

1. On the **Tools** menu, click **Accounts**.
2. On the **Mail tab**, click **Import**.
3. In the Look In box, select the Mail Backup folder.
4. Click the **mail account** that you want to import, and then click **Open**.
5. Repeat these steps for each mail account that you want to import.
6. Click **Close**.

Importing the newsgroup account file

1. On the **Tools** menu, click **Accounts**.
2. On the **News tab**, click **Import**.
3. In the Look In box, select the Mail Backup folder.
4. Click the **news account** that you want to import, and then click **Open**.
5. Repeat these steps for each news account that you want to import.
6. Click **Close**.

Migrating Outlook Express to Outlook 2007

1. Open **MS Outlook 2007** Application
2. Click **File** and then **Import & Export** from the Menu
3. Select Import internet mail and Addresses in the import and export wizard and then click **Next**
4. **Select** Outlook Express 4.x, 5.x, 6.x or Windows Mail in the next windows that appear and also check Import Mail and Import Address Book checkboxes. Click **Next**
5. Select Do not import duplicate items and then click **Finish**
6. Click **Ok** on the import summary dialog box

Importing DBX files from a backup folder in Outlook Express

1. **Create** a new folder in Outlook Express corresponding to the name of the DBX file which you want to import
2. Create a **test email** and save it in the drafts folder
3. Move the test email from the drafts folder to the newly created folder created in Outlook Express

4. **Close** the Outlook Express
5. Go to the Outlook Express Store location and **rename** Home Email.dbx to Home Email.DBX. old
6. **Copy** the Home Email.dbx from the backup location to Outlook Express Store folder

How to Backup and Restore Blocked Senders List and Other Mail Rules

Perform the following steps to backup and restore the block senders list:

The Blocked Senders List

1. Click **Start**, and then click **Run**.
2. In the Open box, type **Regedit**, and then click **OK**.
3. **Locate** and click the following registry sub keys (save each key to a different file):
4. HKEY_CURRENT_USER\Identities\{IdentityNumber}\Software\Microsoft\Outlook Express\5.0\Block Senders
5. On the Registry menu, **click** Export Registry File.
6. In the Save In box, change the location to your desktop.
7. In the File Name box, type blocked senders.reg (for the Block Senders key), and then click **Save**.

Other Mail Rules

1. Click **Start**, and then click **Run**.
2. In the Open box, type **Regedit**, and then click **OK**.
3. **Locate** and click the following registry sub keys (save each key to a different file):
4. HKEY_CURRENT_USER\Identities\{IdentityNumber}\Software\Microsoft\Outlook Express\5.0\Rules\Mail
5. On the Registry menu, click **Export Registry** File.
6. In the Save In box, change the location to your desktop.
7. In the File Name box, type mail rules.reg (for the mail rules key), and then click **Save**.
8. On the Registry menu, click **Exit**.

Restoring blocked list

Open Outlook Express on the new computer, and complete the Internet Connection Wizard to set up your Identity and account information. If you had multiple identities in the previous installation, complete these steps for each Identity. To do this:

1. Click **Start**, and then click **Run**.
2. In the Open box, type **notepad.exe**.
3. Click Open on the **File** menu, and then locate the Block Senders.reg file that you created.

4. In the second line of text, select the text after "HKEY_CURRENT_USER\Identity\" that includes the braces {}. On the **Edit** menu, click Copy to copy this text to the Microsoft Windows Clipboard.
5. On the Edit menu, click **Replace**. Click your pointer in the Find what box, and then click Paste on the Edit menu to paste the text into that box. Do not close the Notepad application until you are directed to do so later in this process.
6. Start Registry Editor on the new computer (as in step 1 of "The Blocked Senders List" section), and locate the HKEY_Current_User\Identities folder. Double-click the User ID key in the right pane, and then click the Value data.
7. Press **CTRL+C** to copy that value to the Windows Clipboard. Click Cancel to close the Edit String dialog box, and then close **Registry Editor**.
8. In Notepad, click your point in the Replace with box, and press **CTRL+V** to paste the text. Click **Replace All** to replace all instances of the text strings.
9. Scroll through the entire list to make sure that all registry keys have the new text string, rather than the old string. On the **File** menu, click **Save**, and then close Notepad.
10. Double-click the **Block Senders.reg** file, and then click **Yes** when you are prompted: "Are you sure you want to..." to import the Block Senders list to the registry for the new computer.
11. Follow steps 1 through 10 above on the mail rules.reg file to update that file with the new Identity information.

Migration of Outlook Express to Windows Mail

Exporting Address Book from Outlook Express

1. Open **Outlook Express**
2. Click on **File** menu, then **Export, Address Book**
3. On the 'Address export tool' box, select the option '**Text file** (Comma separated Values)' and then click on **Save**
4. **Browse** and **select** the location where you wish to save your Address book give a suitable name to the file and click **Save**
5. CSV export window will open which will ask for the field you want to export from the address book, select the fields and press **Finish** button

Exporting E-mail Accounts settings

1. Open **Outlook Express**
2. Click **Tools** and then click **Accounts**
3. On the **Internet Accounts** windows click **Mail Tab**
4. **Select** the account you want to export first, click export select the destination folder and file name and save.
5. Repeat the above steps for all the accounts one by one.

Exporting E-mail Messages

1. Open **Outlook Express**
2. Click **Tools** and then click **Options**
3. Click **Maintenance Tab** and then **Store Folder** button
4. This will display a new dialog box showing the path where Outlook Express is storing the email messages. **Copy** the location
5. Open **My Computer** and paste the location in the address bar
6. Now you will the folder where OE stores all the emails
7. **Copy all** the messages to a another folder
8. Remember to uncheck the Read-Only attributes otherwise the Import process will fail

Importing the Address Book to Windows Mail

1. Open **Windows Mail**
2. Click **File** and then click **Import** and **Windows Contacts**
3. On the next window **Select** 'CSV-(Comma Separated Values)' and then click on **Import** button
4. **Browse** to the file where you exported the address book from outlook express click **Open**
5. Now click on **Next**
6. Select the fields in the address book you want to import, select the desired fields and then press **Finish**

Importing E-mail Accounts Settings

1. Open **Windows Mail**
2. Click **Tools** and then click **Accounts**
3. On the **Internet Accounts** window click **Import** button
4. **Browse** to the location and select the file where you exported the e-mail accounts settings
5. Repeat the above steps for all the accounts one by one. After the account is imported you can see it under the Internet Accounts Window.

Importing E-mail Messages

1. Open **Windows Mail**
2. Click **File** and then click **Import** and **Messages**
3. Select **Microsoft Outlook Express 6** and then click **Next**
4. Select Import mail from an OE6 store directory and press the **OK** button
5. **Browse** to the folder where you exported all your e-mail messages select and press **Next**
6. **Select** the message folder you want to import or press all folders to import all mail folders and then click **Next**

7. It will display an alert message after completing the importing process click **Finish** to close the window
8. All the e-mail messages from outlook express will be placed in the imported folder in windows mail. Any folder can be moved using drag and drop



Check your understanding

1. How will you migrate an email account from Outlook Express to MS Outlook 2007?
2. Create two email accounts for Ravi in Outlook Express using the following information:

Yahoo Account

- Username: ravi@yahoo.com
- Password: 123456
- SMTP: smtp.yahoo.com
- POP3: pop.yahoo.com

MSN Account

- Username: ravi@msn.com
- Password: 123678
- SMTP: smtp.msn.com
- POP3: pop.msn.com

3. Create the signatures for Ravi using the following information in Outlook Express:
 - Ravi Kumar
 - Manager ABC Pvt. Ltd
 - Extn: 1058
 - Cell No. 9999999999
4. How will you export the Newsgroup to a file?
5. How will you export the Address Book in .CSV format?
6. Your friend Ravi wants to import the .DBX files from the backup folder. Help him to import the files?
7. Ravi wants to format the hard drive and reload the Windows but before doing so he wants to backup the messages from Outlook Express. Help him to create the backup?
8. Ravi uses Outlook Express to check his mails. On his birthday his wife gifted him a new computer with Windows Vista. Can you help him to transfer the email account settings, messages, address book etc. to his new computer?

Microsoft Outlook 2003

Creating backup of .PST file in Outlook 2003

1. Click **options** under tools menu.
2. On the **maintenance tab**, click **store folder**.
3. **Copy** the store location in the store location dialog box.
4. Click **Windows + R**, paste the above copied store location and press enter.
5. **Copy** the content of the stored folder.
6. **Create** a folder in desired drive, give a suitable name paste the content you copied and your mail is backed up.

Repairing PST File in Outlook 2003

Outlook keeps the data on computer using personal folder file (.PST),

If .PST files gets damaged outlook has a tool that can correct the problem without using the backup copy. This tool is also called Inbox Repair Tool it is installed when Outlook is installed.

To repair the PST file perform the following steps:

1. Click **Windows + R**
2. In the **Run** box, type:
Drive:\ProgramFiles\CommoFiles\System\Mapi\LocaleID\scanpst.exe
3. Click **OK**
4. Enter the name of the file you want to scan, type the path and file you got in error message
5. Click **Options** button if you wish to change the options for logging errors. If you choose Replace log or Append to log, the log file is saved to the same directory as the .PST file.
6. Click **Start**.
7. Check the option 'Make a backup of scanned file before repairing when the file scan is complete
8. Click **Repair**
9. It will display a Repair Complete message on successfully repairing the PST file
10. If the repair tool cannot repair the file you need to use the backup file to fix the error.

How to backup Outlook 2003 items

1. Open **Outlook 2003**
2. Click on **File** menu and then click on **Import and Export**.
3. Click **Export** to a file.
4. Click on **Export to File** (.PST) and then click **Next**.
5. Select the folder you want to backup and click **Next**.
6. Click **Browse** and **select** the location to save your backup files.
7. Give a File Name and click **OK**

8. Click **Finish**
9. Enter a password to make your file password protected

Import the backup file to Outlook 2003

1. Open **Outlook 2003**.
2. Click on **File** menu and then click on **Import and Export**
3. Select Import from another program or file and click **Next**
4. Click **Personal Folder File** (.pst).
5. Click **Browse** and **select** the location from where you wish to import the backup and then click **OK**
6. Enter Password if any for your backup folder
7. Click **Finish**

Migration of Outlook 2003 to Outlook 2007

Before upgrading to Outlook 2007 we must export Address Book, e-mail Accounts settings, and e-mail messages in Outlook 2003 to export it in Outlook 2007.

How to export Address book in Outlook

1. Select **import and export** from **file** menu
2. Choose Comma separated Values and then press export button, install a translator if prompted.
3. Save the **.CSV file** to your desired location.
4. Give a name and press **save**.
5. You can select only the required fields to export.
6. Click **finish** and we are done

How to import Address book in Outlook

1. Open **import and export** from **file** menu again.
2. Select the comma Separated Values (Windows) and then click **next**, Install a translator if prompted.
3. Locate the .CSV file that was exported by clicking **Browse**, click **open** then **next**. Click on **Do not import duplicate items** radio button and then click **next**.
4. Select fields if you wish before completing the import, click **ok** when done.
5. Click **finish** the address book will be imported

Exporting the E-mail Messages

1. Select **import and export** from the **file** menu.
2. Click **Export to a file**, and then click **Next**.
3. Click **Personal Folder File** (.PST), and then click **Next**.
4. Select the folder that you want to back up. Check the Include Subfolders check box if the folder contains a subfolder and then click **Next**.

5. In the next window click **Browse** and then specify a name and location for your backup file.
6. If you back up a .PST file that you have backed up to before, you need to choose one of the options that appears in the next windows.
7. Click **Finish**.

Importing the E-mail Messages

1. Select **import and export** from the **file** menu.
2. Click **Import** from another program of file, and then click **Next**.
3. Click **Personal Folder File** (.PST), and then click **Next**.
4. Select the folder that you want to back up. Check the Include Subfolders check box if the folder contains a subfolder and then click **Next**.
5. In the next window click **Browse** and then specify a name and location for your backup file.
6. If you back up a .PST file that you have backed up to before, you need to choose one of the options that appears in the next windows.
7. Click **Finish**.

Migration of Outlook to Windows Mail

First of all we have to export address book and e-mail messages from outlook one by one before importing to Windows mail.

Export Address book from Outlook

1. Select **import and export** from **file** menu
2. Choose Comma separated Values and then press export button, install a translator if prompted.
3. Save the .CSV file to your desired location.
4. Give a name and press **save**.
5. You can select only the required fields to export.
6. Click **finish**.

Exporting the E-mail Messages

1. Select **import and export** from the **file** menu.
2. Click **Export** to a file, and then click **Next**.
3. Click **Personal Folder File** (.PST), and then click **Next**.
4. **Select** the folder that you want to back up. Check the Include Subfolders check box if the folder contains a subfolder and then click **Next**.
5. In the next window click **Browse** and then specify a name and location for your backup file.
6. If you back up a .PST file that you have backed up to before, you need to choose one of the options that appears in the next windows.
7. Click **Finish**.

Importing the Address book

1. Click **Import** and Windows Contacts under the **file** menu option in windows mail.
2. Select the first option 'CSV-(Comma Separated Values) in the next window you see, and then click on **import** button.
3. **Browse** to the file where you exported the address book from outlook click **open**
4. Now click on **next**,
5. Once again a window will appear asking to select the fields in the address book you want to import, select the desired fields and press **finish**.

Importing the E-mail Messages

1. Click **Import** then messages under the **file** menu.
2. In the Windows Mail **Import** window, select the third option Microsoft Outlook Express 6, and then click **next**.
3. **Select** Import mail from an OE6 store directory and press the **OK** button
4. **Browse** to the folder where you exported all your e-mail messages **select** and press **next**
5. **Select** the message folder you want to import or press all folders to import all mail folders and then click **next**.
6. A window will appear with the 'import complete message'. Press the **finish** button.
7. All the e-mail messages from outlook will be place in the imported folder in windows mail. Any folder can be moved using drag and drop.

Microsoft Outlook 2007

Modifying E-Mail Account Settings

1. Open **MS Outlook 2007**
2. Click **Tools** and then click **Accounts Settings**
3. Click **Email tab** and then click **Change** button
4. Modify the required settings

Setting up an Exchange Account

1. Click **Start** and then click **Control Panel**
2. Double click **Mail icon** in the **Control Panel**
3. Click **Email Accounts** button on the Mail Setup dialog box
4. On the new window click **Email Tab** and then click **New** button
5. Select "**Manually Configure Server Settings**" and then click **Next** button
6. Select Microsoft Exchange and then click **Next** button
7. Enter the Exchanger Server settings, check the Username and then click **Next** button
8. Click **Finish** to complete the configuration process

Setting up an IMAP/POP3 Mailbox

1. Open **MS Outlook 2007**
2. Click **Tools** and then click **Accounts** Settings
3. Click **Email Tab** and then click **New**
4. **Select** the box "Manually Configure Server settings" and then click **Next** button
5. **Select** Internet Email Account and then click **Next** button
6. Enter Your Name, Email Address, Username and Password and then click **Next** button
7. Click **Finish** to complete the configuration process

Setting up an HTTP Mailbox

1. Open **MS Outlook 2007**
8. Click **Tools** and then click **Accounts** Settings
2. Click **New** in the dialogue box that opens
3. Enter the basic information, check "Manually configure server settings or additional server types," and click **Next**.
4. Choose the server type as 'Internet E-mail' and click **Next**
5. Enter the desired e-mail settings
6. Choose HTTP as the account type and click **Next**
7. You should receive confirmation that the setup has been successful. Click **Finish** to return to the Account Settings dialogue.

Managing Outlook Add-ins

1. Open **Outlook 2007** application
2. Click **Tools** and then click **Trust Center**
3. Click **Add-ins** on the left side of the new window
4. Scroll down and select COM Add-ins and then click **Go** button
5. It will display the list of installed Add-ins
6. **Uncheck** the box to disable an add-in



Check your understanding

1. Ravi uses MS Outlook 2003 to check his mails. He purchased MS Office Suite 2007 and now he wants to transfer the email account settings, messages, address book etc to MS Outlook 2007. Help him to accomplish the task?
2. Ravi uses MS Outlook 2003 to check his mails but today when he tries to access the mails he gets an error related to corrupt .PST file. Can you help him to fix the problem?

3. Ravi is using MS Outlook 2003 but he is not comfortable while using Outlook so he wants to switch back to Windows Mail. Can you help him to switch the email account settings, address book, messages etc. to Windows Mail?
4. VSNL provides the internet services to Ravi, now they have switched from IMAP to POP3 server. Ravi uses MS Outlook 2007 to check his mails. Can you help him to change the account configuration settings?

Business Contact Manager- BCM

Business Contact Manager enables you to organize and manage all contact, prospect, and customer information in a single location so you can spend less time looking for information and be more responsive to your customers.

- Centralize customer and prospect information in Office Outlook 2007 with Business Contact Manager, including contact information, e-mail, phone calls, appointments, notes, and documents.
- Customize the type of contact information you track to suit your unique business needs.
- While out of the office, you can work offline on your laptop or Pocket PC and synchronize your data when you return.
- Easily share customer and prospect data across the company with secure multi-user access.
- Integrate customer contact information and financial history when you use Office Outlook 2007 with Business Contact Manager along with Microsoft Office Accounting 2008.
- Track billable time on your Outlook calendar and automatically send it to Office Accounting for invoicing and payroll.

To install BCM you need the following:

- BCM Installation Disc
- .Net Framework
- SQL Server

Once you insert the BCM disc in the drive, the setup launches automatically. Follow the on-screen instructions to install the application.

Note: Close the MS Office Applications before installing BCM

Using Express Settings

1. After completing the installation process it prompts to create a database for this you can **choose** Express or Advanced setup. Click **Next** to continue.
2. It prompts to register the contact information after selecting the setup option for this you need to enter the **contact information**
3. After completing the registration process it displays several options, select the required options and then click **Next** button
4. Click **Finish** to complete the setup Process

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Using Advanced Setup

1. If you select **Advanced Setup** then it will prompt you to select a new database or existing one. Click **Next** button after selecting the appropriate option
2. Now it will prompt you to register the contact information, enter the required details and then click **next** button
3. Select the desired options and then click **Next** button
4. Click **Finish** to complete the process.



Check your understanding

1. How the Business Contact Manager helps to manage and organize the customer information?
2. What are the components required to install Business Contact Manager?
3. What is the difference between express and advance setup installation of Business Contact Manager?

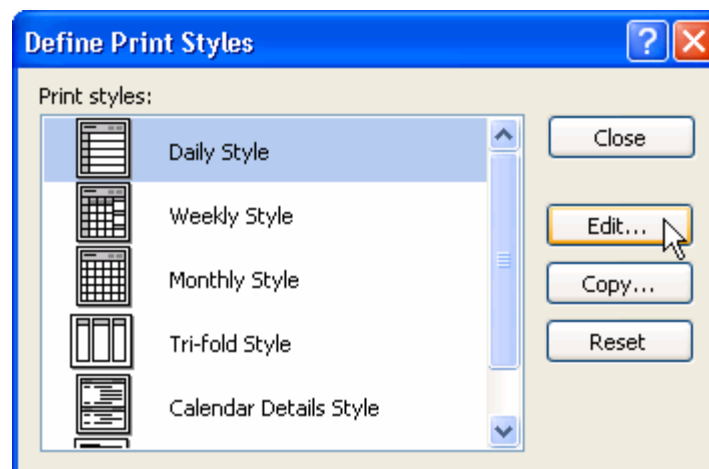
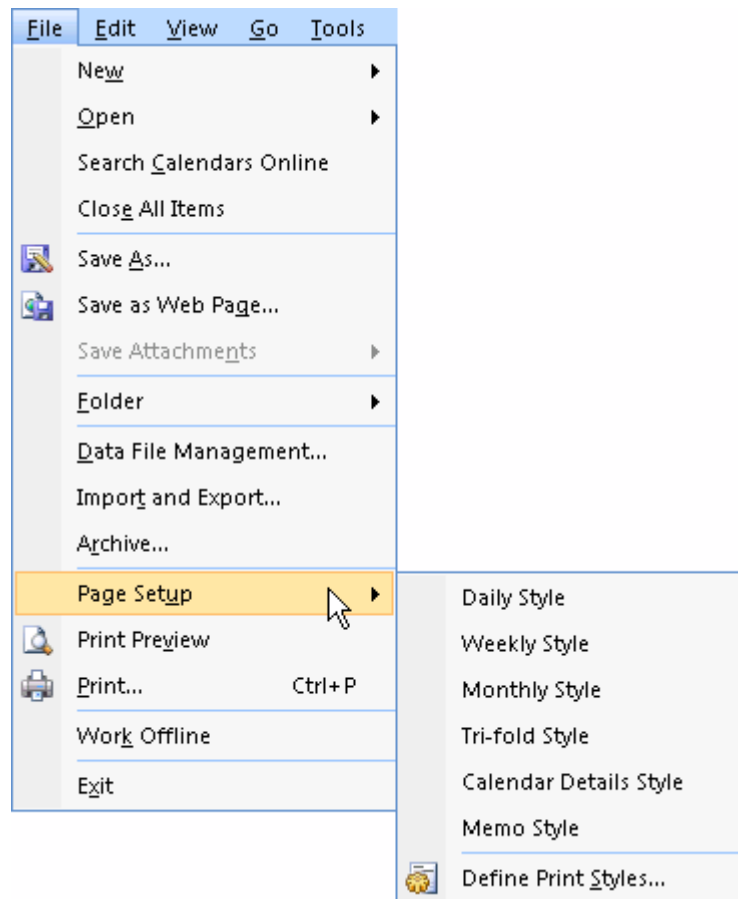
Printing Messages

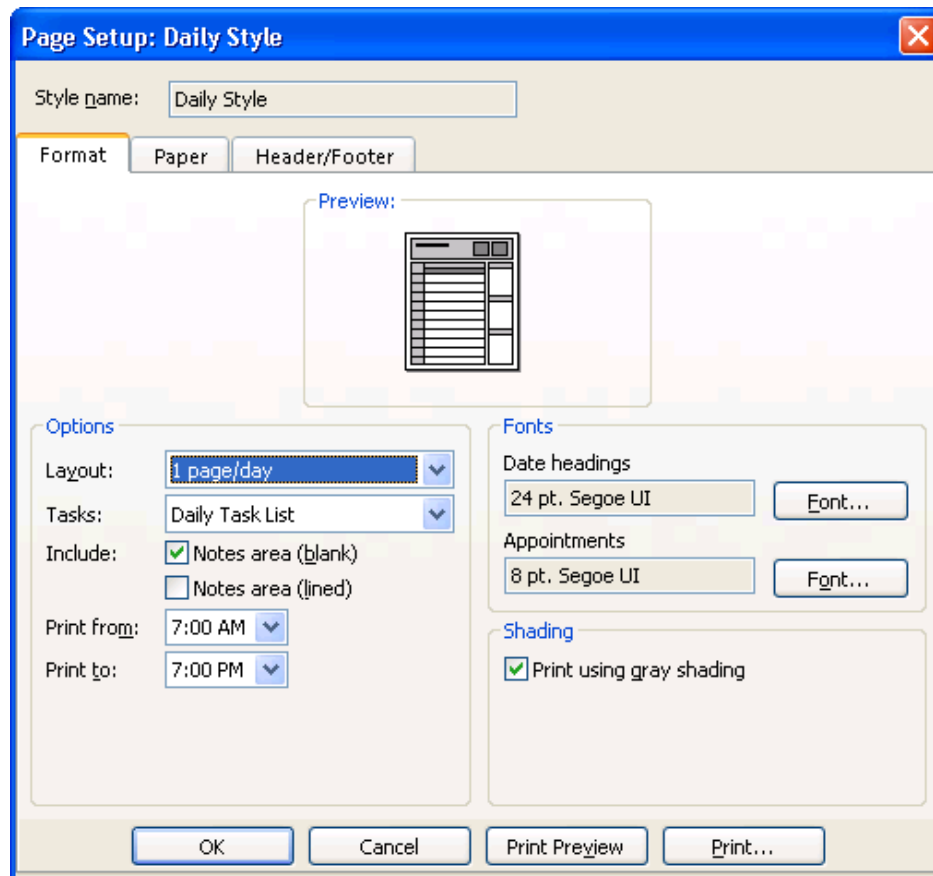
You can use the following ways to print a message:

1. Click **Printer icon** on the Standard Toolbar of Email Client
2. Use the shortcut key **CTRL + P**
3. Click **File** on the Outlook window and then click **Print**

Choosing Page Setup

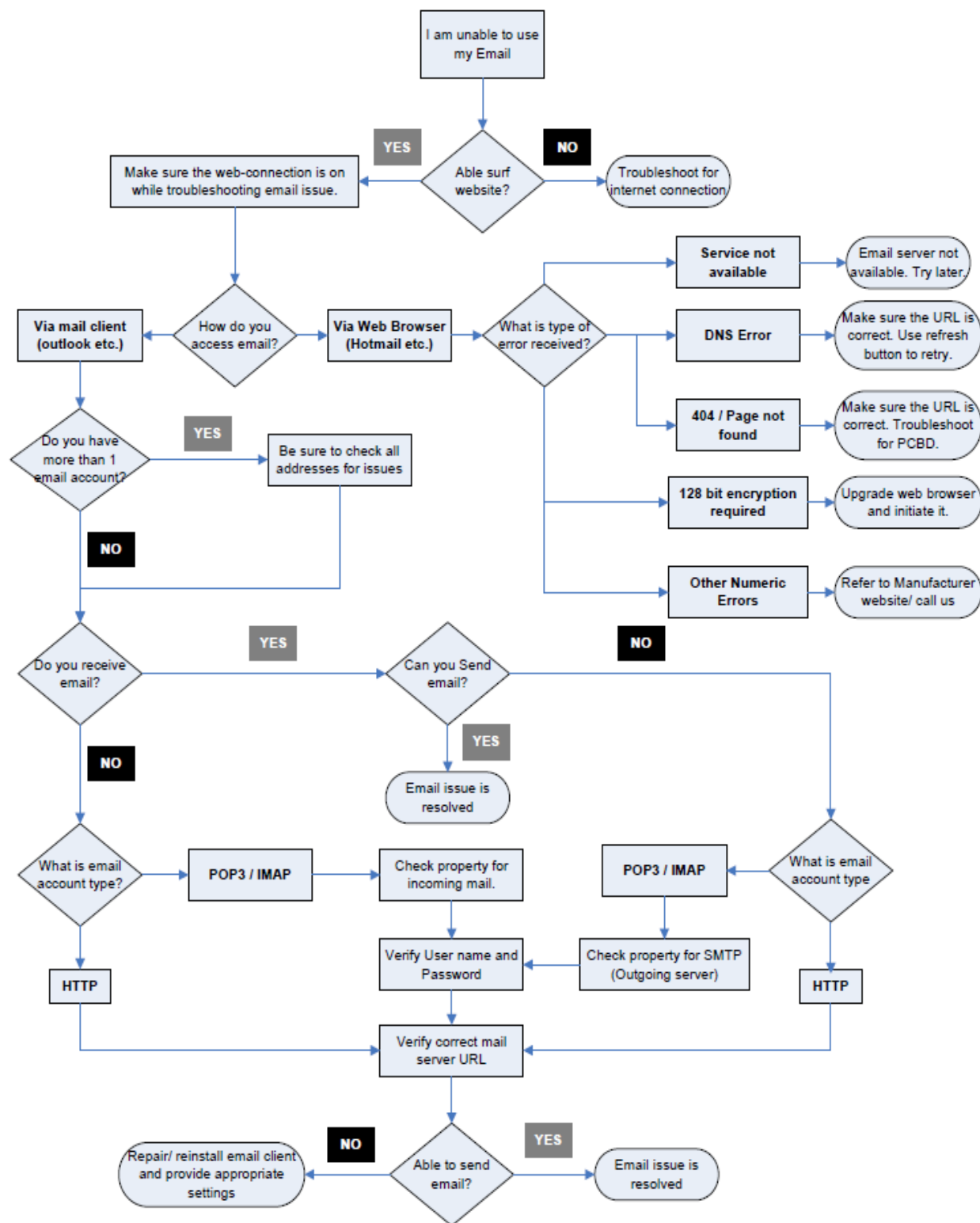
Before you print, you can choose how the page will be set up. To see a list of pre-defined styles, click the **File** menu, choose **Page Setup**, and click one of the options.



**To customize the page setups do the following:**

1. Click **File** on the Outlook window and then click Page Setup and select the Style you wish to use
2. OR, When you press **CTRL + P** it displays the print dialog box under Print Style you can define the page setup and print style

Troubleshooting Email Clients



Problem 1

Unable to send and receive e-mails in Outlook or Outlook Express with an error message

Cause: These error messages are frequently caused by one of the following:

- You are not connected to the Internet or a network, or your mail server is temporarily unavailable.
- Your account settings are incorrect.
- Your user profile in Outlook is damaged.
- An e-mail item on your POP3 server is damaged.
- The configuration of your AV software is incorrect.
- Outlook Express was removed from the computer or the installation is damaged.
- The configuration of your personal firewall software is incorrect.

Solution

Method 1: Verify that you are connected to the Internet

To verify that you can connect to the Internet and that your mail server was not temporarily unavailable, follow these steps:

1. Start an Internet browser, such as Internet Explorer.
2. Type one of the following addresses in the address bar.
 - <http://www.microsoft.com>
 - <http://www.msn.com>
 - <http://www.live.com>

If you successfully connected to the Internet, go to step 3.

3. Send yourself a test e-mail to verify that you can send and receive e-mail messages without receiving an error message.
4. If your test was successful, you are finished. If you still receive an error message, go to method 2 to verify your account settings.

Method 2: Verify your account settings

To verify that your e-mail account information and e-mail server settings are configured correctly in Outlook or Outlook Express, we recommend that you contact your e-mail service provider (which may also be your Internet Service provider).

If this method did not work for you, perform the following methods in order.

Method 3: Start Outlook in safe mode

Starting Outlook in safe mode starts Outlook without add-ins, the preview pane, or toolbar customizations and could indicate a damaged profile or conflicting third-party application or add-in. See method 2 to create a new e-mail profile.

Method 4: Create a new e-mail profile

You may be able to resolve these problems by creating a new e-mail profile.

1. Click **Start**, and then click **Run**.
2. Copy and paste (or type) the following command in the Open box and then press **ENTER**:

Control panel

3. If you are in Classic View, double-click **Mail**. The Mail Setup dialog box opens. Go to step 5.
4. If you are in Category View, under Control Panel, click **Switch to Classic View**, and then double-click Mail. The Mail Setup dialog box opens.
5. In the Mail Setup dialog box, click **Show Profiles**.
6. On the **General tab**, under When starting Microsoft Office Outlook, use this profile, click Prompt for a profile to be used, and then click Add.
7. In the Profile Name box, type the name that you want to use for the new e-mail profile, and then click **OK**.
8. In the E-mail Accounts dialog box, click **Add a new e-mail account**, and then click **Next**.
9. Click the appropriate server type for your new e-mail account, and then click **Next**.
10. Type your account information in the required boxes, and then click **Next**.
11. Click **Finish**, and then click **OK**.

Method 5: Delete suspicious messages from your mailbox

If there is a damaged message in your mailbox, you can resolve this by doing one of the following:

- Contact your ISP and ask them to delete any suspicious e-mail.
- Delete any suspicious e-mail by accessing your mailbox by using your ISP's Web-based e-mail program.

Method 6: Check your antivirus vendor's Web site for additional suggestions

If your antivirus solution includes an e-mail scanning feature, you may have to perform additional configuration tasks to use Outlook or Outlook Express with the antivirus e-mail scanning feature.

Antivirus software that is known to have caused this problem includes products by the following vendors:

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- Symantec (Norton)
- McAfee
- Trend Micro (PC-cillin)
- Panda

Method 7: Remove and then reinstall Outlook Express

If Outlook Express was removed from your computer or the installation of Outlook Express is damaged, Outlook will not function correctly and may generate one of the error messages that are mentioned in the "Symptoms" section. To resolve this problem, reinstall Outlook Express.

Method 8: Verify that all SMTP e-mail addresses in a distribution list are valid

If one SMTP address in a distribution list is corrupted or incorrectly formed, error 0x8004210b can occur. Examine all addresses in the distribution list to verify that they are correct. Additionally, you can send individual test messages to each distribution list member to determine the bad address.

Method 9: Examine the configuration of your firewall software

Warning: *This workaround may make a computer or a network more vulnerable to attack by malicious users or by malicious software such as viruses. We do not recommend this workaround but are providing this information so that you can implement this workaround at your own discretion. Use this workaround at your own risk.*

Configure your firewall software to grant access to the Internet for the following files:

- For Outlook Express: Msimn.exe
- For Outlook: Outlook.exe

By default, most e-mail clients have outgoing access on port 25 and incoming access on port 110. For more information about the ports that communicate with your e-mail server, contact your ISP or system administrator.

Firewall software that is known to have caused this problem includes products by the following vendors:

- McAfee
- Symantec
- ZoneLabs
- Cisco
- Sygate
- Sonicwall
- Freedom Security Zero Knowledge

Method 10: If the error code is accompanied by a time-out error message, you may be able to resolve this problem by increasing the server time-out setting in Outlook or Outlook Express. To increase the server time-out setting, use the following method that is appropriate for your version of Outlook or Outlook Express.

Outlook 2002 and Outlook 2003

1. Start **Outlook**.
2. On the **Tools** menu, click **E-mail Accounts**.
3. Click **View** or change existing e-mail accounts, and then click **Next**.
4. Click your POP3 account, and then click **Change**.
5. Click **More Settings**.
6. Click the **Advanced tab**.
7. Gradually increase the server time-out setting until the issue is resolved.

Outlook 2007

1. Start **Outlook**.
2. On the **Tools** menu, click **Account Settings**.
3. Click to select the target POP3 account, and then click **Change**.
4. Click **More Settings**.
5. Click the **Advanced tab**.
6. Gradually increase the server time-out setting until the issue is resolved.

Problem 2

E-mail stuck in outbox

Causes: Any of the following can cause sent mail to remain in your Outbox:

1. You opened the message from your Outbox before it was sent.
2. You are working offline and have not made a remote connection.
3. Your Personal Folders (*.pst) file is damaged.
4. Your Personal Address Book (*.pab) file is damaged.
5. You have an outdated or incompatible add-in.
6. You replied to an e-mail message that you received from an old account.

Solution

1. **Message Opened From Your Outbox:** After you send a message, Outlook moves it into your Outbox. When Outlook establishes a connection to your mail server, it attempts a delivery and a copy of the sent message appears in your Outbox. If you open and close a message while it is still in your Outbox, you change the status of the message and it is not sent. The message title will no longer appear in italic formatting in the Outbox Messages view.

To return the message to Send status, open the message and click Send on the message toolbar. The message title should become italicized **in** the **Outbox** Messages view. During the next connection with the mail server Outlook should deliver the message

2. **Working Offline:** If you use the Internet Mail Only (IMO) installation:

1. On the **File** menu, click to clear **Work Offline**.
2. On the **Tools** menu, point to Send And Receive, and click the name of the **Internet Service account**.

If you use the Corporate Workgroup (CW) installation with Microsoft Exchange Server service:

1. On the **Tools** menu, click **Services** to open the Services dialog box.
2. On the **Services tab**, click to select Microsoft Exchange Server and click **Properties**.
3. On the **Advanced tab**, click to clear the "**Enable offline use**" check box.
4. Click **OK** and **OK** again to close all dialog boxes.
5. **Quit** and restart Outlook.

3. **Damaged Personal Folders or Address Book Files**

The first troubleshooting step is to run the Inbox Repair Tool. To do so, follow these steps:

1. If the Folder List is not visible, click **Folder List** on the View menu while displaying the Inbox.
2. Right-click the **Personal Folders** icon in the Folder List, click "**Properties** For 'Personal Folders,'" and on the **General tab** click **Advanced**. Write down the path and name of your .PST file. Click Cancel twice to close the dialog boxes.
3. Quit **Outlook**.
4. Click **Start**, point to Programs, point to **Accessories**, point to **System Tools**, and then click **Inbox Repair Tool**.
5. In the Inbox Repair Tool, click **Browse** and **select** your Personal Store file (.PST), recorded in step 2.
6. Click **Start** to begin scanning your file.
7. When you are finished with the **Inbox Repair Tool**, restart **Outlook**.
8. **Copy** the contents of the message stuck in your Outbox and paste it into a new message.
9. **Delete** the original message and try sending the new message.

Create a New Personal Folders File

The second troubleshooting step is to create a new Personal Folders file. To do so, follow these steps:

1. On the **File** menu, point to **New** and click "**Personal Folders File (.pst).**"
2. Open the folder that contains your existing Personal Folders file, as noted in step 2 in the previous section, type a unique name in the File Name box, and click Create. For this test, keep the default settings in the "Create Microsoft Personal Folders" dialog box and click **OK**.
3. In the Folder List, click the **new Personal Folders** file.
4. On the **File** menu, point to Folder, and click "**Properties** For 'Personal Folders.'"
 5. Click "**Deliver POP mail** to this personal folders file," and click **OK**.
 6. Try sending your e-mail.
 7. follow the steps above to create a new Personal Folders file, copy the contents of all of the folders to the new Personal Folders file, excluding the Outbox, exit, and restart Outlook, and then recreate and send your messages.

Create a New Profile

The third troubleshooting step is to create a new profile with a new Personal Folders file (PST) and a new Personal Address Book (PAB).

If you use the Corporate Workgroup installation (CW), follow these steps:

1. Quit **Outlook** if it is running.
2. Click **Start**, point to Settings and click **Control Panel**.
3. Double-click the **Mail And Fax** icon or the Mail icon, click **Show Profiles** and click **Add** to add a new profile.
4. Follow the Inbox Setup Wizard to create a new profile with a new .pst and .pab file.
5. **Start** Outlook and try to send a message.
 1. The fourth troubleshooting step is to search your system for multiple Personal Folders files (PST) and/or Offline Store (OST) files. **Rename** each file and create a new profile.
 2. The fifth troubleshooting step is to check for the addressee's e-mail name in the Personal Address Book. If it is not present, add it. If it is present, delete the entry and re-add it.
 3. The last troubleshooting step is to try another client. **Quit** Outlook and search your hard disk for Exchng32.exe. Run **Exchng32.exe** using your existing services to send mail.

4. Outdated or Incompatible Add-ins

Outdated or incompatible add-ins may cause mail delivery problems.

Add-ins, such as old Netscape extensions or Fax software, may cause e-mail delivery problems. Follow these steps to check your active add-ins:

1. On the **Tools** menu, click **Options** to open the Options dialog box.
2. On the Other tab, click **Advanced** Options, and then click **Add-In Manager**. Your active add-ins have check marks beside the **add-in** name.
3. To deactivate an **add-in**, click to clear the **add-in** check box, and click **OK** three times to close all the dialog boxes.

5. Replied to Message From Old Account

The easiest way to resolve this issue is to move the message that is stuck in your Outbox to your Inbox, create and address a new message, paste the information from the message that is stuck in your Outbox to the new message, and then send the new message. Outlook attempts to send the new message from your current default e-mail account instead of the old account.

Problem 3

Error: Unable to open Outlook, no profile has been created or list of profiles cannot be loaded

Cause: This issue may occur on a computer that is running Microsoft Windows XP when the Outlook.exe file was configured to open with the Windows program compatibility mode settings

Solution

Method 1: Locate Outlook.exe

- For Outlook 2007- C:\Program Files\Microsoft Office\Office12
 - For Outlook 2003- C:\Program Files\Microsoft Office\Office 11
 - For Outlook 2002- C:\Program Files\Microsoft Office\Office 10
 - For Outlook 2000- C:\Program Files\Microsoft Office\Office 9
1. Right click **Outlook.exe** and then click **Properties**
 2. Click **Compatibility tab** and uncheck Run this Program in Compatibility Mode
 3. Click **Ok**
 4. Try to open **Outlook**

Method 2: Modify the registry entries

1. Click **Start** and then click **Run**
2. Type **Regedit** and then click **Ok**
3. **Locate** the key:

HKEY_CURRENT_USER\Software\Microsoft\WindowsNT\CurrentVersion\Windows Messaging Subsystem

4. **Delete** the Profiles key under the Windows Messaging (Subsystem) key
5. **Close** the Registry Editor
6. **Restart** the Computer

Problem 4

How to import from Outlook to Eudora

Solution

1. From the **File** menu, choose **Import**. The Import Mail and Addresses dialog box appears.
2. In the dialog box, choose **Microsoft Outlook**.
3. Choose Import Mail and/or Address Book then click OK. Microsoft Outlook should begin importing into Eudora.
4. Depending on how much mail you have, the process may take a few minutes. Once it finishes, you should see your mailboxes available in Eudora.

Advanced Importing

If the automatic process above does not work for you, you can manually direct Eudora to import.

1. From the **File** menu, choose **Import**. The Import Mail and Addresses dialog box appears.
2. Click **Advanced**. The Advanced Import dialog box appears. Advanced Import dialog box (showing Microsoft Outlook required field).
3. Choose **Microsoft Outlook**.
4. In the Please Locate your PST file, click Browse and look for the .PST file. Make sure the file appears in the text box. (The PST file has the .PST extension. You can search for it using Windows Explorer.)
5. When finished, click **OK**.

Problem 5

Error: Unable to open the address book in Outlook 2007

Cause: This error may occur if an address book that uses Internet directory services (LDAP) is configured in Microsoft Outlook, and Outlook cannot contact the LDAP server that is configured for that LDAP address book.

Solution

Open Microsoft Outlook 2007. From the **'Tools'** menu, click **'Account Settings'**. Click the **'Address Books'** tab. Click the **LDAP address book**. Click the **'Change'** button. Ensure that the setting for the LDAP server are correct. Click the **'Next'** button. Click the **'Close'** button.

Microsoft Outlook 2007 enables you to send and receive e-mails. In Microsoft Outlook 2007, an Address Book contains information, such as name and e-mail address of the contacts. Sometimes, when you open the address book, you may get an error.

To resolve the problem:

1. Open **Microsoft Outlook 2007**.
2. From the '**Tools**' menu, click '**Account Settings**'. (The 'Account Settings' dialog box appears.)
3. Click the '**Address Books**' tab. (The 'Address Books' tab appears.)
4. Click the **LDAP address book**.
5. Click the '**Change**' button.
6. Ensure that the settings for the LDAP server are correct.
7. Click the '**Next**' button.
8. Click the '**Close**' button.

Problem 6

Contacts are missing after upgrading Windows Live Mail/Messenger

Cause: This happens because contact list is not migrated correctly from previous version to latest version

Solution

1. Click **Start** and then click **Run**.
2. Type **regedit.exe** and press **Enter**.

For Windows Vista or Windows 7

1. Click **Start**.
2. Type **regedit** in the Start Search box and press **Enter**.
3. Type password or click on confirmation in the security windows.
4. **Locate** the following registry entry,

HKEY_CURRENT_USER\Software\Microsoft\Windows Live Mail

5. Double click the **Settings** Upgraded key.
6. Type B in the Value Data field
7. Click **OK**.
8. **Exit** Registry.

Problem 7

Images are blocked when you open an e-mail message in Outlook Express

Cause: This behavior occurs because of the new Block images and other external content in HTML e-mail security option. By default, this option is turned on in Outlook Express after you install Windows XP SP2.

Solution

1. Open **Outlook Express**
2. On the **Tools** menu, click **Options**, and then click the **Security tab**.
3. Click to clear the Block images and other external content in HTML e-mail check box.
4. Click **OK**

Problem 8

Email client prompts for user name and passwords

The most common possibilities for your email program prompting you for your password again include:

- You changed your password, and your email program simply needs to know the new one.
- You're having connectivity problems to your email server. Try again later, or from a different location.
- Your email program is slightly confused. I've seen Thunderbird get into this state. Exit and restart your mail program.
- Your email account has been closed or suspended.
- Someone else changed your password, or your account has been stolen.
- Your email service no longer provides POP3/IMAP/SMTP access as used by desktop email programs

Solution

1. Open **Outlook**
2. Select **Tools> E-mail Accounts** menu option Or **Tools> Options> Mail Setup tab> Email Accounts** button
3. The "View or change existing e-mail accounts" item should be already selected. Click **"Next"**.
4. Select the account you want to modify and click **"Change"**.
5. In the next screen, click **"Remember password"** in the "Logon Information" section in the lower left corner.
6. Then click **"Next"** or **"OK"** as necessary to confirm.

Problem 9

Unable to open link in OE mail

To fix this problem follow the step 1 if this does not fix the issue than continue to step 2.

Solution

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Step 1

1. Click **Start**, and then click **Run**
2. Type **regsvr32 urlmon.dll**, and then click **OK**.
3. When you receive the "DllRegisterServer in urlmon.dll succeeded" message, click **OK**.

Step 2

Register all the following files.

1. Click Start>Run>Type regsvr32 Shdocvw.dll>click ok
2. Click Start>Run>Type regsvr32 Msjava.dll>click ok
3. Click Start>Run>Type regsvr32 Actxprxy.dll>click ok
4. Click Start>Run>Type regsvr32 Oleaut32.dll>click ok
5. Click Start>Run>Type regsvr32 Mshtml.dll>click ok
6. Click Start>Run>Type regsvr32 Browseui.dll>click ok
7. Click Start>Run>Type regsvr32 Shell32.dll>click ok

Problem 10

Unable to open or save attachments in OE

When you are not able to open or save the attachments from the mails you received in OE than do the following steps:

Solution

1. Click>**Tools>Options>Security** tab
2. Uncheck the box "Do not allow attachments to opened or saved that could be potentially a virus.
3. Click **Apply** and **Ok**.

Problem 11

Getting Duplicate Email Messages

Cause: This problem occurs because Outlook 2003 has the junk e-mail protection level set to Safe Lists Only.

Solution

Install the latest Service pack of Outlook 2003. The following link is for Service pack 3

<http://www.microsoft.com/downloads/details.aspx?FamilyID=E25B7049-3E13-433B-B9D2-5E3C1132F206&displaylang=en>

Problem 12

E-mail message appears empty when you open an Encrypted Mail

Cause: This problem occurs when you use Outlook 2003 in Cached Exchange Mode.

Solution

Follow these steps:

1. Start **Outlook 2003**.
2. On the **Tools** menu, click **E-mail Accounts**.
3. Click **View** or change existing e-mail accounts, and then click **Next**.
4. Under the Name column, click the **account** that you want to modify, and then click **Change**.
5. Click to clear the Use Cached Exchange Mode check box.
6. Click **Next**, click **OK**, and then click **Finish**.
7. **Quit** and then **restart** Outlook 2003.

If still issue is not fixed than install the latest Service pack of Outlook 2003. The following link is for Service pack 3

<http://www.microsoft.com/downloads/details.aspx?FamilyID=E25B7049-3E13-433B-B9D2-5E3C1132F206&displaylang=en>

Problem 13

Error Message when you start Outlook

Cause: The (.PST) file where Outlook delivers your e-mail messages is corrupted, and Outlook cannot locate it.

Solution

Click Start, point to Search, and then click Files or Folders.

1. Type **scanpst.exe** in the Search for files or folders named box, and then click **Search Now**.
2. In the list of found files, double-click the Scanpst.exe file.
3. Type the name of the (.PST) file that you want to repair, or click **Browse** to locate the (.PST) file.
4. Click **Start**.

Problem 14

Error: Outlook.exe caused an 'access violation' fault in module riched20.dll at 014f:4802bc95

OR

Outlook caused an Invalid Page Fault in riched20.dll

Cause: This behavior may occur if the Riched20.dll file on your computer is damaged or is missing.

Solution

Rename the Riched20.dll file

1. Click **Start**, and then click **Search**.
2. In the search companion pane, click **All files and folders** under What do you want to search for.
3. In the All or part of the file name box, type Riched20.dll.
4. In the Look in box, click **Local Hard Drives**, and then click **Search**.
5. In the Search Results window, right-click Riched20.dll, click **Rename**, type Riched20.old, and then press **ENTER**.

Problem 15

Outlook crashes after upgrading Outlook 2003 to Outlook 2007

Solution

1. Click **Start** and then click **Run**
2. Type **Regedit** and then click **Ok**
3. Locate the key:

HKEY_CURRENT_USER\Software\Microsoft\Office\11.0\Outlook\Options\General

4. In the right pane Delete the following keys:

- Security Zone
- PONT_STRING
- BodyEditor
- WarnDelete

5. **Close** the Registry Editor
6. **Restart** the Computer

Problem 16

Unable to switch identities in Outlook Express after you install Windows XP SP1

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Work Around

1. Open **Outlook Express**
2. Click **File** and then click **Identities**
3. Click **Manage Identities**
4. Click to clear the Use this identity when starting a program check box
5. Click **Close**.

Solution

Download and install Cumulative Update for Outlook Express 6.0 SP1 from the following link:

<http://www.microsoft.com/downloads/details.aspx?FamilyID=0da93be7-65e3-4c76-ad1e-a9c153e76594&DisplayLang=en>

Problem 17

Error: "Identity Switch Canceled" when starting Outlook Express

Cause: This issue can occur if the following registry key is missing or damaged:

HKEY_CURRENT_USER\Identities\<Account ID>\<User ID>

Note: *Backup the registry or create a system restore point before modifying the registry entries.*

Solution

For Example- User ID have the value data of 12345ABC-ABCD-12A1-ABC1-12A12AB12345

HKEY_CURRENT_USER\Identities\12345ABC-ABCD-12A1-ABC1-12A12AB12345

In this key, <Account ID> represents your identity

1. Click **Start** and then click **Run**
2. Type Regedit and then press **Enter**
3. **Locate** the following registry key:
4. HKEY_CURRENT_USER\Identities\<Account ID>
5. If the User ID is listed, then delete the User ID string value and create a new one
6. If you have more than one identity and need to find out which one you need to edit, look at the Username string value of the HKEY_CURRENT_USER\Identities\<Account ID> key. Use the above given example to find the key.

Problem 18

Outlook 2003 crashes every time while opening

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Solution

1. Go to following location:
2. C:\Documents and Settings\%user%\Application Data\Microsoft\Outlook\outcmd.dat
3. And Rename the OUTCMD.DAT as OUTCMD.DAT.OLD (here %user% is the user name)

**Check your understanding**

1. Ravi uses Outlook Express to check his mails. He is not able to send and receive mails. What logical troubleshooting you will do fix the problem?
2. Ravi needs to send an important mail to his boss but the mail gets stuck in Outbox. What troubleshooting you will do to fix the problem?
3. While trying to open MS Outlook Ravi gets the following error:
"Unable to open Outlook, no profile has been created or list of profiles cannot be loaded"
What will you do to fix the error message?
4. Ravi upgraded the Windows Live Mail, now he finds that all the contacts are missing. What will you do to resolve the issue?
5. Ravi's son changed some computer settings while playing games. Now whenever Ravi tries to check his mails the Outlook prompts for the username and password. Can you help him to fix the issue?
6. Ravi uses Outlook Express to check his mails. He received an email which contains a link but he is not able to open the link. What can be possible solution to fix this issue?
7. Ravi gets the following error message while trying to open Outlook to check his mails:
"Outlook caused an Invalid Page Fault in riched20.dll"
How can you help Ravi to fix the error?
8. Ravi upgraded his Outlook 2003 to Outlook 2007, now the application crashes whenever he tries to access it. Can you help him to resolve the issue?

Day 2: Microsoft Office

Module Objectives:

By the end of this module you will understand:

- Microsoft Office
- Installation and Un-installation of Microsoft Office
- Repairing MS Office installation
- Support Boundaries
- How to MS-Office applications
- Troubleshooting common issues with MS-Office

Microsoft Office Versions

Version	Release date	Editions	Notes
Office 2000 (9.0)	January 27, 1999	<ul style="list-style-type: none"> Standard, Professional Small Business Premium Developer 	Last version to support Windows 95. Office 2000 is also the last version which does not include Product Activation and is not covered by Office Genuine Advantage, although on individual installs, the Office Update website still required the presence of original install media for updates to install.
Office XP(10.0) or Office 2002	May 31, 2001	<ul style="list-style-type: none"> Standard Small Business Professional Professional with Front Page Professional Special Developer 	Last version to support Windows 98/Me/NT 4.0. Improved support for working in restricted accounts under Windows 2000/XP.
Office 2003(11.0)	November 17, 2003	<ul style="list-style-type: none"> Basic Student and Teacher Standard Small Business Professional Enterprise 	First version to introduce Windows XP style icons. Last version to support Windows 2000.
Office 2007(12.0)	January 30, 2007	<ul style="list-style-type: none"> Home Basic Home and Student Standard Small Business Professional Professional Plus Enterprise Ultimate 	Broadly released alongside Windows Vista.
Office 2010(14.0)	2010	<ul style="list-style-type: none"> Starter Home and Student Home and Business Standard Professional Professional Academic Professional Plus 	There will be no Microsoft Office 13 due to superstition. This is the first version to ship in 32- and 64-bits. It is the latest release of Microsoft Office.

Microsoft Office Components

Microsoft Office includes following components:

Microsoft Word: Word processor

Microsoft Excel: Spreadsheet application

Microsoft Power Point: Presentation program

Microsoft Outlook: Personal Information Manager

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Microsoft Publisher: Desktop publishing application

Microsoft Access: Relational database management system

Microsoft InfoPath: Develops XML-based data entry forms

Microsoft OneNote: Used for free-form information gathering and multi-user collaboration

Microsoft Communicator: Instant messaging client used with Microsoft Office Communications Server

Other Desktop Applications:

Microsoft Office SharePoint Designer: A WYSIWYG HTML editor and web design program for customizing SharePoint applications

Microsoft Project: Project management software to keep track of events and to create network charts and Gantt charts

Microsoft Visio: Diagram and flowcharting software

Microsoft Office Accounting: Manages business finances

Microsoft Office Document Imaging: Supports editing scanned documents.

Microsoft Office Document Scanning: A scanning and OCR application.

Microsoft Office Groove: A proprietary peer-to-peer collaboration software levelled at businesses.

Microsoft Office InterConnect: Business-relationship database available only in Japan.

Microsoft Office Picture Manager: Basic photo management software

Virtual Printer Applications:

Microsoft Office Document Image Writer: A virtual printer allowing documents from Microsoft Office or any other application to be printed and stored in an image file in TIFF or Microsoft Document Imaging Format.

Server applications:

Microsoft Office SharePoint Server: Collaboration server- Excel Services and InfoPath Forms Services are its components

Microsoft Office Communications Server: real time communications server

Microsoft Office Forms Server: Allows InfoPath forms to be accessed and filled out using any browser.

Microsoft Office Groove Server: Centrally managing all deployments of Microsoft Office Groove in the enterprise

Microsoft Office Project Server: project management server

Microsoft Office Project Portfolio Server: Allows creation of a project portfolio, including workflows, hosted centrally

Microsoft Office PerformancePoint Server: Allows customers to monitor, analyze, and plan their business.

Microsoft Office – Version (Component Availability)

Office 2000

Component	Standard	Small Business	Professional	Professional Special (upgrade)	Developer
Excel	Yes	Yes	Yes	Yes	Yes
Word	Yes	Yes	Yes	Yes	Yes
Outlook	Yes	Yes	Yes	Yes	Yes
PowerPoint	Yes	No	Yes	Yes	Yes
Access	No	No	Yes	Yes	Yes
Publisher	No	Yes	OEM only	Yes	No
FrontPage	No	No	Volume only	Yes	Yes
Developer tools	No	Small Business Tools	No	No	Yes
PhotoDraw	No	No	No	Yes	Yes

Office XP or 2002

Component	Standard	Small Business	Professional	Professional Special (upgrade)	Professional with FrontPage	Developer
Excel	Yes	Yes	Yes	Yes	Yes	Yes
Word	Yes	Yes	Yes	Yes	Yes	Yes
Outlook	Yes	Yes	Yes	Yes	Yes	Yes
PowerPoint	Yes	No	Yes	Yes	Yes	Yes
Access	No	No	Yes	Yes	Yes	Yes
Publisher	No	Yes	OEM only	Yes	No	No
FrontPage	No	No	Volume only	Yes	Yes	Yes
Developer tools	No	No	No	No	No	Yes
SharePoint Team Services	No	No	No	No	No	Yes

Office 2003

Component	Basic	Student and Teacher Edition	Standard	Small Business	Professional Edition	Professional Enterprise Edition
Word	Yes	Yes	Yes	Yes	Yes	Yes
Excel	Yes	Yes	Yes	Yes	Yes	Yes
Outlook	Yes	Yes	Yes	Yes with Business Contact Manager	Yes with Business Contact Manager	Yes with Business Contact Manager
PowerPoint	No	Yes	Yes	Yes	Yes	Yes
Publisher	No	No	No	Yes	Yes	Yes
Access	No	No	No	No	Yes	Yes
InfoPath	No	No	No	No	No	Yes

Office 2007

Component	Basic	Home and Student	Standard	Small Business	Professional	Ultimate	Professional Plus	Enterprise
Word	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Excel	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PowerPoint	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Outlook	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Business Contact Manager	No	No	No	Yes	Yes	Yes	Yes	Yes
Publisher	No	No	No	Yes	Yes	Yes	Yes	Yes
Access	No	No	No	No	Yes	Yes	Yes	Yes
InfoPath	No	No	No	No	No	Yes	Yes	Yes
Groove	No	No	No	No	No	Yes	No	Yes
OneNote	No	Yes	No	No	No	Yes	No	Yes
Communicator	No	No	No	No	No	No	Yes	Yes
Integrated Enterprise Content Management	No	No	No	No	No	Yes	Yes	Yes
Integrated Electronic Forms	No	No	No	No	No	Yes	Yes	Yes
Office Customization Tool (OCT)	No	No	Yes	Yes	No	No	Yes	Yes

Office 2010

Programs and Features	Starter	Home and Student	Home and Business	Standard	Professional	Professional Academic	Professional Plus
Word	Starter Edition	Yes	Yes	Yes	Yes	Yes	Yes
Excel	Starter Edition	Yes	Yes	Yes	Yes	Yes	Yes
PowerPoint	No	Yes	Yes	Yes	Yes	Yes	Yes
OneNote	No	Yes	Yes	Yes	Yes	Yes	Yes
Outlook	No	No	Yes	Yes	Yes	Yes	Yes
Publisher	No	No	No	Yes	Yes	Yes	Yes
Access	No	No	No	No	Yes	Yes	Yes
Communicator	No	No	No	No	No	No	Yes
InfoPath	No	No	No	No	No	No	Yes
SharePoint WorkPlace (Groove)	No	No	No	No	No	No	Yes
Office Customization Tool (OCT)	No	No	No	Volume edition only	No	No	Volume edition only

Mail Merge

Mail merge is when you take a document (such as an e-mail message, a letter, or a label) and merge it with a data source (such as a list of addresses). The finished result is customized to each entry in the data source.

For example, let's say you want to send a Christmas newsletter summing up the events of the year to all the members of your family. You would like to have it personalized for everyone, but you have 50 people on your mailing list! You can use mail merge to create the letter and then merge it with your address list so that each letter is addressed to the recipient.

Merge fields

These are the places where Word will insert your data. For example, the <<Address Block>> merge field marks where each person's address will go.

Data Source

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This is the file that contains the personalized information, such as a list of addresses. Data sources can be existing files (such as Access databases), pulled from an application (such as your Outlook contacts), or created during the mail merge.

Record

A record is one set of data in your data source. For example, a record from your Outlook contacts could contain the person's first and last name, mailing address, and e-mail address.

The easiest way to perform a mail merge is by using the Mail Merge wizard.

1. To start the mail merge wizard, click the Mailings ribbon. Then, click Start Mail Merge and click the Step by Step Mail Merge Wizard command.
2. It will display the task pane on the right hand side of your screen, prompting you to choose a document type.

Note: *For this example, we'll stick with letters. The remaining steps may differ slightly depending on the document you're creating, but the basic concept remains the same.*

3. As we have already created a letter, so select the current document. Click Next after selecting the document.
4. Now Mail Merge Wizard prompts you to choose who the mailings will be sent to. Depending on the option you select, your choices will be different.
5. After selecting the source it prompts to select the list. Simply check a contact to include it or uncheck a contact to remove it. Click Ok, after selecting the list.
6. You can also click inside the document and then click each link to specify more information about the field. For example, if we click Address Block, we will be prompted to format the address block.
7. To preview the document use the arrows in the task pane to scroll through the recipients.
8. If you need to make any changes to the recipients, click Edit Recipient List in the task pane.
9. Once the mail merge is complete print the letters.



Check your understanding

1. What is the version for MS Office 2010?
2. Home Basic edition is a part of MS Office 2010 suite? True/ False
3. What is the reason that Microsoft has not launched MS Office version 13?
4. For what purpose the following applications are used:
 - Excel

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- Publisher
 - Access
 - InfoPath
 - OneNote
 - Communicator
 - Visio
 - Groove
5. PhotoDraw is a part of MS Office 2000 Standard edition? True/False
 6. Front page is a part of MS Office XP? True/False
 7. What edition of MS Office was released with Business Contact Manager for the first time?
 8. Integrated Electronic Forms is one of the components of MS Office 2007 Professional Plus? True/ False
 9. Office Customization tool (OCT) is one of the components of MS Office 2007 Enterprise edition?
 10. Ravi is celebrating 25th Anniversary of his wedding on this occasion he drafted an invitation letter to invite all his relatives and friends. But he doesn't know how to print the letter using the contact list. Can you help him accomplish the task?

System Requirements

Outlook 2000

Component	Premium/Developer	Professional	Small Business	Standard
Processor	Personal computer with Pentium 166-megahertz (MHz) or higher required for Microsoft PhotoDraw	Personal computer with Pentium 75-MHz or higher		
Operating System	Microsoft Windows 95, Windows 98, Windows 98 Second Edition, Windows Millennium Edition (Windows Me), Windows NT 4.0 with Service Pack 6 (SP6),1 Windows 2000, or Windows XP or later.			
RAM For Windows 95 or Windows 98	16 megabytes (MB) of RAM for the operating system, plus an additional 4 MB of RAM for each application running simultaneously			
	8 MB required for Microsoft Outlook, Microsoft Access, or Microsoft FrontPage; 16 MB for PhotoDraw	8 MB required for Outlook or Access	8 MB required for Outlook	
RAM For Windows Me	32 MB of RAM for the operating system, plus an additional 4 MB of RAM for each application running simultaneously			
	8 MB required for Outlook, Access, or FrontPage; 16 MB for PhotoDraw	8 MB required for Outlook or Access	8 MB required for Outlook	
RAM For Windows NT Workstation	32 MB of RAM for the operating system, plus an additional 4 MB of RAM for each application running simultaneously			
	8 MB required for Outlook, Access, or FrontPage; 16 MB for PhotoDraw	8 MB required for Outlook or Access	8 MB required for Outlook	
RAM	64 MB of RAM for the operating system, plus an additional 4 MB of RAM for			

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For Windows 2000 Professional ²	each application running simultaneously			
	8 MB required for Outlook, Access, or FrontPage; 16 MB for PhotoDraw	8 MB required for Outlook or Access	8 MB required for Outlook	
RAM For Windows XP Professional, or Windows XP Home Edition	128 MB of RAM for the operating system, plus an additional 4 MB of RAM for each application running simultaneously			
	8 MB required for Outlook, Access, or FrontPage; 16 MB for PhotoDraw	8 MB required for Outlook or Access	8 MB required for Outlook	
Available disk space Numbers indicate default installation; your hard-disk usage will vary depending on configuration. Choices made during custom installation may require more or less hard-disk space.	Disc 1: 252 MB Microsoft Word Microsoft Excel Outlook Microsoft PowerPoint Access FrontPage Disc 2: 174 MB Microsoft Publisher Small Business Tools Disc 3: 100 MB PhotoDraw <i>For optimal performance, we recommend an additional 100 MB of free hard-disk space for user graphics and temporary image caches.</i> Additional Requirements for Developer Edition: 60 MB for minimal installation 95 MB for MSDN library 345 MB for complete installation	Disc 1: 217 MB Word Excel Outlook PowerPoint Access Disc 2: 174 MB Publisher Small Business Tools	Disc 1: 178 MB Word Excel Outlook Disc 2: 182 MB Publisher Small Business Tools	Disc 1: 189 MB Word Excel Outlook PowerPoint
CD-ROM drive	Yes			
Monitor	VGA or higher resolution monitor; Super VGA recommended			
Mouse	Microsoft Mouse, Microsoft IntelliMouse, or compatible pointing device			

Outlook XP (for all editions)

Component	Requirement
Computer/processor	Computer with Pentium 133 megahertz (MHz) or higher processor; Pentium III recommended
Memory	For all Office XP suites: RAM requirements depend on the operating system used: <ul style="list-style-type: none"> ▪ Windows 98 or Windows 98 Second Edition 24 MB of RAM plus an additional 8 MB of RAM for each Microsoft Office program (such as Microsoft Word) running simultaneously ▪ Windows Me or Microsoft Windows NT 32 MB of RAM plus an additional 8 MB of RAM for each Microsoft Office program (such as Word) running simultaneously ▪ Windows 2000 Professional 64 MB of RAM plus an additional 8 MB of RAM for each Microsoft Office program

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	(such as Word) running simultaneously ▪ Windows XP Professional, or Windows XP Home Edition 128 MB of RAM plus an additional 8 MB of RAM for each Microsoft Office program (such as Word) running simultaneously
Hard disk	Hard disk space requirements will vary depending on configuration; custom installation choices may require more or less. Listed below are the minimum hard disk requirements for Office XP suites: ▪ Office XP Standard 210 MB of available hard disk space ▪ Office XP Professional and Professional Special Edition² 245 MB of available hard disk space An additional 115 MB is required on the hard disk where the operating system is installed. Users without Windows XP, Windows 2000, Windows Me, or Office 2000 Service Release 1 (SR-1) require an extra 50 MB of hard disk space for System Files Update.
Operating system	Windows 98, Windows 98 Second Edition, Windows Millennium Edition (Windows Me), Windows NT 4.0 with Service Pack 6 (SP6) or later, ³ Windows 2000, or Windows XP or later.
Drive	CD-ROM drive
Display	Super VGA (800 x 600) or higher-resolution monitor with 256 colors
Peripherals	Microsoft Mouse, Microsoft IntelliMouse, or compatible pointing device

Outlook 2003 (for all editions)

Component	Requirement
Processor	Pentium 233 MHz or higher processor; Pentium III recommended
Operating system	Microsoft Windows 2000 Service Pack 3 or later, or Windows XP or later (recommended)
Memory	128 MB or higher RAM (recommended)
Monitor	Super VGA (800 x 600) or higher resolution with 256 colors

Outlook 2007

Component	Basic/Standard/Home and Student	Professional/Small Business/Professional Plus/Enterprise	Ultimate
Computer and Processor	500 megahertz (MHz) processor or higher	500 megahertz (MHz) processor or higher	500 megahertz (MHz) processor or higher
Memory	256 megabyte (MB) RAM or higher	256 megabyte (MB) RAM or higher	256 megabyte (MB) RAM or higher
Hard Disk	1.5 gigabyte (GB); a portion of this disk space will be freed after installation if the original download package is removed from the hard drive	2 gigabyte (GB); a portion of this disk space will be freed after installation if the original download package is removed from the hard drive.	3 gigabyte (GB); a portion of this disk space will be freed after installation if the original download package is removed from the hard drive.
Drive	CD-ROM or DVD drive	CD-ROM or DVD drive	DVD drive

Display	1024x768 or higher resolution monitor	1024x768 or higher resolution monitor	1024x768 or higher resolution monitor
Operating System	Microsoft Windows XP with Service Pack (SP) 2, Windows Server 2003 with SP1, or later operating system ²	Microsoft Windows XP with Service Pack (SP) 2, Windows Server 2003 with SP1, or later operating system	Microsoft Windows XP with Service Pack (SP) 2, Windows Server 2003 with SP1, or later operating system

Office 2010

Component	Required amount
Computer and Processor	500 megahertz (MHz) processor or higher
Memory	256 megabyte (MB) RAM or higher
Hard Disk	2 gigabyte (GB); a portion of this disk space will be freed after installation if the original download package is removed from the hard drive.
Drive	CD-ROM or DVD drive
Display	1024x768 or higher resolution monitor
Operating System	Microsoft Windows XP with Service Pack (SP) 3, Windows Server 2003 with SP1, or later operating system

Installing Microsoft Office 2007

There are three main options to install MS Office 2007:

- Purchase and download the executable file from Microsoft Website
- Purchase the disc online
- Purchase the disc from a retailer

The steps to install Microsoft Office 2007 are as follows:

1. **Insert** Office 2007 CD/DVD into the drive or double-click the setup.exe file. Once you initiate the installation process, it displays the following screen.
2. Enter the product key and then click Continue button.
3. Click **Install Now** button to install the complete package. If you wish to install the selected components then click **Customize** button.
4. **Select** the components you wish to install and then click **Install Now** button.
5. After completing the installation process click **Close** button.

Install/ remove individual Office programs & components

If the feature that you want is not automatically installed, follow these steps:

Exit all programs.

In Microsoft Windows, click the **Start** button, and then click **Control Panel**.

Do one of the following:

- Windows Vista: Click **Programs**, and then click **Installed Programs**. Click the name of the Microsoft Office edition or program you want to change, and then click **Change**.
- Microsoft Windows XP Click **Add or Remove Programs**, and then click **Change or Remove Programs**. Click the name of the Microsoft Office edition or program you want to change, and then click **Change**.

In the 2007 Microsoft Office system Setup dialog box, click **Add or Remove Features**, and then click **Next**.

Click the custom installation options that you want:

Click a **plus sign (+)** to expand a folder and see more features.

The symbol next to each feature indicates how that feature will be installed by default. You can change how the feature will be installed by clicking its symbol, and then selecting another symbol from the list that appears.

If a feature has subfeatures, a symbol with a white background indicates that the feature and all of its subfeatures have the same installation method. A symbol with a gray background indicates that the feature and its subfeatures have a combination of installation methods.

When you are done choosing the custom installation options that you want, do one of the following:

- Click **Upgrade**. This button appears if Setup detects an earlier version of the same Office program on your computer.
- Click **Install Now**. This button appears if Setup does not detect an earlier version of the same Office program on your computer.

Uninstalling MS Office 2007

You can uninstall MS Office 2007 by the following options:

- From Add / Remove OR Programs & Features
 - From Office Disc – Using uninstall.exe
 - From Start Menu
 - From Downloaded Executable
1. Click **Start** and then click **Control Panel**
 2. Double click **Add/Remove Program** (or **Programs and Features** in Windows Vista) icon
 3. Select MS Office 2007 application and then click **Remove** button. Wait till it removes the setup files.
 4. **Reboot** the computer after un-installation.

Upgrading from Microsoft Office 2007 to Microsoft Office 2010

To upgrade MS Office 2007 to MS Office 2010, follow these steps:

- **Run** the set up file from the Office 2010 installation CD or the exe file
- **Accept** the terms of the license agreement and click continue.
- In the next step you will have two options, one to upgrade the current version or to customize the install. If you select **Upgrade** from this option, then your older version of Office will be replaced with the new Office 2010.

Support Boundaries

Supported Components:

- Microsoft Office
- Microsoft Word
- Microsoft Encarta
- Microsoft Excel
- Microsoft PowerPoint
- Microsoft Access
- Microsoft Visio
- Microsoft Works
- Mail Merge
- Open Office

All versions 97 to 2010

Scope of Support

- Installation/Un-installation
- Troubleshooting errors while launching or working with the application
- Troubleshooting problems while printing from the application
- No detailed How-To's or Formulas or usage issues would be supported

Black List

- Formatting of text
- Formulas and Pivots in Excel
- Macros
- MS Access: Database Connections, programming, troubleshooting database connectivity
- How to issues with MS Publisher, One Note, Groove, Info Path, Business Contact Manager
- How to issues with software other than MS Office,
- Format conversations other than Office 2007 to earlier versions
- List of all supported software to be published

Other Bloatwares

Microsoft Works

Smaller, less expensive, and with fewer features than the Microsoft Office suite, its core functionality includes a word processor, a spreadsheet and a database. Newer versions have a calendar application and a dictionary while older releases included a terminal emulator.

Microsoft Works is an office suite ("home productivity software suite") produced by Microsoft. Smaller, less expensive, and with fewer features than the Microsoft Office suite, its core functionality includes a word processor, a spreadsheet and a database. Newer versions have a calendar application and a dictionary while older releases included a terminal emulator. A 'Works Portfolio' utility offers Microsoft Binder-like functionality.

Microsoft Works has built-in compatibility for the Microsoft Office document formats (DOC and XLS), including, but not limited to, the ability of the Works Word Processor to open Microsoft Word documents and the ability of the Works Spreadsheet to open Microsoft Excel workbooks. Newer versions include task panes but do not include significantly updated features. Even in the latest version (Version 9.0), the Windows 95-era icons and toolbars have not been updated to stay consistent with modern application software. Version 9.0 which offers Windows Vista compatibility, is available in two editions, an advertisement-free paid version, available in retail and OEM versions and an ad-supported free version (Works SE) which is available only to OEMs for preinstalling on new computers.

While Works' proprietary native .WKS (spreadsheet), .WDB (database) and .WPS (word processor) file formats limit its utility for larger organizations, the simplicity and ease of integrating database/spreadsheet data into word processor documents (e.g., mail merge) allow it to still remain an option for some small and home-based business owners. Version 4.5a is particularly noted in this respect. The database, while a "flat file", i.e. non-relational, allows the novice user to perform complex transformations through formulas (which use standard algebraic syntax and can be self-referential) and user-defined reports which can be copied as text to the clipboard.

Microsoft Encarta

Microsoft Encarta is a digital multimedia encyclopedia published by Microsoft Corporation from 1993 to 2009.

Microsoft Encarta is a digital multimedia encyclopedia published by Microsoft Corporation from 1993 to 2009. As of 2008, the complete English version, Encarta Premium, consisted of more than 62,000 articles, numerous photos and illustrations, music clips, videos, interactivities, timelines, maps and atlas, and homework tools, and was available on the World Wide Web by yearly subscription or by purchase on DVD-ROM or multiple CD-ROMs. Many articles could also be viewed online free of charge, a service supported by advertisements.

Microsoft published similar encyclopedias under the Encarta trademark in various languages, including German, French, Spanish, Dutch, Italian, Portuguese and Japanese. Localized versions may contain contents licensed from available national sources and may contain more or less content than the full English version. For example, the Dutch version has content from the Dutch Winkler Prins encyclopedia.

OpenOffice

OpenOffice.org, commonly known as OOo or OpenOffice, is an open-source software application suite available for a number of different computer operating systems. It is distributed as free software and written using its own GUI toolkit.

OpenOffice.org, commonly known as OOo or OpenOffice, is an open-source software application suite available for a number of different computer operating systems. It is distributed as free software and written using its own GUI toolkit. It supports the ISO/IEC standard OpenDocument Format (ODF) for data interchange as its default file format, as well as Microsoft Office formats among others. As of November 2009, OpenOffice supports over 110 languages.

OpenOffice.org originated as StarOffice, an office suite developed by StarDivision and acquired by Sun Microsystems in August 1999.

Troubleshooting MS Office

General Troubleshooting for Office Installation Issues

Problem 1

Disk space or RAM errors.

Cause: The computer does not meet the minimum requirements documented for the software.

Solution

Install an additional drive or free up enough drive space, or add more physical memory (RAM).

Problem 2

Missing or corrupt files

Cause: The CD might be bad, or downloaded files might be corrupt or missing.

Solution

Request a new CD from the manufacturer, or download the files again.

Problem 3

Permission-denied errors

Cause: An administrator might need to install the software, or network policies prevent software installations.

Solution

Contact an administrator or log on as one.

Problem 4

Errors including Can't Copy File To Disk, Permission Denied, and Can't Access Hard Disk.

Cause: Antivirus software might be preventing the application from installing.

Solution

Disable the antivirus software temporarily.

Problem 5

Product ID, validation code, or unlock code does not work.

Cause: You might have made typographical errors when entering the code; for example, you might have entered a zero instead of the letter O. In addition, validation codes might be case sensitive. The code might be invalid because the program has already been installed on another computer.

Solution

Try entering the code again, substituting zeros for the letter O and viceversa. Make sure you enter the code using the correct case. If the code continues to fail, call the company's tech support line, ask an administrator for assistance, or read the license agreement to see whether there are limitations on installations.

Problem 6

Activation failure

Cause: The activation might fail because the program has already been installed on another computer or because the computer is not connected to the Internet.

Solution

Read the license agreement to see whether there are limitations on installations, connect to the Internet if necessary, or activate the product over the phone.

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Problem 7

Installation hangs, gives illegal operation errors, or fails.

Cause: These problems can be caused any number of ways, including the failure to close open programs before installing, failure to follow installation instructions, having incompatible hardware, or not having enough memory.

Solution

Try reinstalling, and carefully follow the instructions shown. Access the company's website, and search for installation help and support files if necessary. Many programs have known issues with specific hardware and operating systems.

Using Office Installation Log Files

If general techniques fail, you can use Office installation log files that are created in your \Temp folder.

Types of log files:

Log file for	Log file name
Setup.exe	Microsoft Office Setup(####).txt
Windows Installer (System Files Update)	Microsoft Office Setup(####)_Task(0001).txt
Windows Installer (Office installation)	Microsoft Office Setup(####)_Task(0002).txt

The #### characters in the log file names are numbers that start with 0001. They increment by one each time that you run Setup. Therefore, the log file that has the highest number is the log file for the most recent time that you ran Setup.

Using Office Installation Log Files – Setup.exe

The log file for the Setup.exe file is very short because the number of tasks that Setup.exe performs is limited to tasks like the following:

- Read the Setup.ini file.
- Parse the command line for properties and switches that have to be passed to the Windows Installer. A common mistake is to include the following on a command line:

Transform=path\transform file name.mst

Using this on the command line does not produce an error message during the installation, but the transform will not be applied to the installation. The correct command line is:

Transforms=*path\transform file name.mst*

The Setup.exe log file contains the command line that you specified for the installation so that you must check the log file for typographical errors such as the one that is shown in the previous example (the letter "s" is missing from the end of "Transform" in the first command line).

- Verify that the correct operating system and service pack are being used.
- Check the version of the Msi.dll file.
- Start the Instmsi(w).exe file to install the Windows Installer.
- Check for installed beta versions of Office.
- Check the version of the Tahoma and TahomaBD fonts.

By default, Setup creates a local installation source in Office, but only when you install Office from the CD or a compressed CD image. If sufficient hard disk space exists on the local computer, Setup caches the whole installation source by default. Windows Installer uses this local installation source to install Office, and the local source remains available for repairing, reinstalling, or updating Office later. Users can install features on demand or run Setup in maintenance mode to add new features. Because Setup creates the local installation source by default, you do not have to set any additional options. Setup creates the local installation source in the following hidden folder on users' computers:

drive\Msocache\Downloadcode

By default, Setup caches the whole source in Office. If the user's computer does not have sufficient disk space, Setup caches installation file for only the selected features. Setup retains the local installation source after the installation is complete.

The following information may be contained in the Setup log:

- Listing of files to be copied to the \MSOCACHE folder:

Files to Download:

File: FILES\WINDOWS\INF\AER_1033.ADM (DW20.ADM_1033)

File: FILES\PFILES\COMMON\MSSHARED\DW\DW20.EXE (DW20.EXE_0001)

File: FILES\PFILES\COMMON\MSSHARED\DW\DWDCW20.DLL (DWDCW20.DLL)

File: FILES\PFILES\COMMON\MSSHARED\DW\1033\DWINTL20.DLL (DWINTL20.DLL_0001_1033)

File: FILES\PFILES\COMMON\MSSHARED\DW\DWTRIG20.EXE (DWTRIG20.EXE)

File: FILES\PFILES\MSOFFICE\OFFICE11\OCLEAN.DLL (OCLEAN.DLL_1033)

File: FILES\PFILES\MSOFFICE\OFFICE11\OCLNCORE.OPC (OCLNCORE.OPC_1033)

File: FILES\PFILES\MSOFFICE\OFFICE11\OCLNCUST.OPC (OCLNCUST.OPC_1033)

File: FILES\PFILES\MSOFFICE\OFFICE11\1033\OCLNINTL.OPC (OCLNINTL.OPC_1033)

File: FILES\PFILES\MSOFFICE\OFFICE11\OFFCLN.EXE (OFFCLN.EXE_1033)

File: FILES\SETUP\OSE.EXE (OSE.EXE)

File: PRO11.MSI (PRO11.MSI)
 File: FILES\PF\FILES\M\SOFFICE\OFFICE11\1033\PSS100.CHM (PSS100.CHM_1033)
 File: FILES\PF\FILES\M\SOFFICE\OFFICE11\1033\PSS10R.CHM (PSS10R.CHM_1033)
 File: FILES\PF\FILES\M\SOFFICE\OFFICE11\1033\SETUP.CHM (SETUP.CHM_1033)
 File: SKU011.XML (SKU011.XML_0002_1033)
 File: A2561405.CAB (A2561405.CAB)
 File: A3561405.CAB (A3561405.CAB)
 File: A4561405.CAB (A4561405.CAB)
 File: AV561403.CAB (AV561403.CAB)
 File: CC561401.CAB (CC561401.CAB)

- Confirmation of Local Install Source settings:

Using Local Cache Drive of already installed product: C:\.
 Found enough space on drive "C:\\" to cache all feature cabinets.
 (CDCACHE=AUTO) - There is enough space to cache some or all of the image. Drive
 for this download is C:\

- Confirmation of completed task:

Package was: E:\5614.0_o11pro_CBXS_ENG\PRO11.MSI.
 Setting Package to: C:\MSOCache\All Users\90000409-6000-11D3-8CFE-
 0150048383C9\PRO11.MSI.
 Done with CD Caching, cached MSI to: C:\MSOCache\All Users\90000409-6000-
 11D3-8CFE-0150048383C9\PRO11.MSI

If you suspect problems with the command-line properties and switches that you are using, these items are also listed in the Setup log file. For example, if you use the following command line to run Setup

f:\Setup.exe companyname="my company" /qb

The following text is included in the Setup log:

```
Launch Setup
9/22/03 1:49:46 PM
companyname="my company" /qb
Detected Windows Info:
PlatformId = 2
MajorVersion = 4
MinorVersion = 0
Setup path: \\server\share\2003_Admin\SETUP.EXE
Adding property...companyname="my company"
```

Recognized command line switch: /qb

And

Office-specific properties added: companyname="my company"

General properties added: LAUNCHEDFROMSETUP=1

SETUPEXEPATH=\\server\share\2003_Admin\

Writing Task:

D:\WINNT\System32\msiexec.exe

/I \\server\share\2003_Admin\PRO11.MSI

METRICSSOURCE="\\server\share\2003_Admin companyname=""my company"" /qb"

companyname="my company" LAUNCHEDFROMSETUP=1

SETUPEXEPATH=\\server\share\2003_Admin\ /qb

Note: Setup.exe does not actually use these command-line switches and properties; it just passes them to the Msiexec.exe file (the Windows Installer).

If the log file for Setup.exe ends in text that is similar to the following (return code: 1603), there was a problem with the Windows Installer portion of the installation:

9/22/03 3:34:27 PM Chained install return code: 1603

Shutting down chained setup processing.

Set Verbose logging for subsequent setup.

***** Setup exits

9/22/03 3:34:27 PM

(return = 1603)

in this case, you must review the Windows Installer log files for the Office installation.

Using Office Installation Log Files – Windows Installer log files

Windows Installer log files

The Windows Installer log files are significantly larger than the Setup log file and can appear to be unreadable at first. However, the following guidelines can help you narrow down the issue:

- If you receive an error message during Setup, search for the error number in the log file. For example, if you receive "Error 1327" during Setup, search for "1327" in the log. You may find text that is similar to the following:

MSI (c) (41:90): Note: 1: 1327 2: C:\\

Error 1327. Invalid Drive: C:\\ MSI (c) (41:90): Product: System Files Update -- Error 1327. Invalid Drive: C:\\ Action ended 15:34:26: CostFinalize. Return value 3.

The key text in these log entries is "Invalid Drive". The problem in this case is that you used a utility like Disk Administrator to change the drive letter of the location where Windows is installed. Although the drive letter was changed, some registry keys still refer to the original drive letter.

- If the Microsoft Knowledge Base does not have an article that matches your specific error message, follow these steps to diagnose the issue:
 1. Search the log file for the error number.
 2. Read each line up from the line with the error number. Typically you see a line that failed, with the ultimate result being a Setup error.

For example, a log file was searched for "error 2737". The following text was located at or above the line with the 2737 error:

```
MSI (c) (B7:A7): Note: 1: 2737 2: CheckCASServer 3:
c:\windows\TEMP\MSI82D6.TMP 4: CheckCASServer
Info 2898. An internal error has occurred. (Tahoma8 Tahoma 1
)
Error 2737. An internal error has occurred. (CheckCASServer

c:\windows\TEMP\MSI82D6.TMP CheckCASServer      )
MSI (c) (B7:A7): Product: Microsoft Office Professional 2003 -- Error 2737. An

internal error has occurred. (CheckCASServer
c:\windows\TEMP\MSI82D6.TMP

CheckCASServer      )
```

Action ended 9:58:55: CheckCASServer. Return value 3.

Looking at this text, you see that Setup failed on the call to CheckCASServer.

- All log files contain one or more errors that typically can be ignored. These errors are listed with Info IDs- 2898, 2743, and 2726
- One thing to search for is the string "Note". In one case where Setup failed with a 2755 error, the actual resolution for the case was derived from the Note several lines above the error:
- Another string to search for in the log file is "Return Value 3". If you do not have or remember an error number, but you locate "Return Value 3" in the log file, this is clearly the area where it is best to focus your troubleshooting. When an action is performed during Setup, the action is noted in the log files. When that action is complete, a return value is subsequently noted. If the return value is 1, the action was successful; however, if the action failed, the return value will be 3.

- Sometimes when you review a log file, you do not find "Note", "Return Value 3", or an error number. In this case, Setup is having a problem applying a transform, because the transform cannot be located on the specified path (C:\test.mst). Therefore, Setup also tries to locate the transform on the root of the Office source location. When the transform cannot be located in either place, the installation stops.

Using Office Installation Log Files – Verbose Log Files

All the techniques that are listed in the "Windows Installer Log Files" section can be used on verbose log files. However, verbose logging increases Setup times. Only use verbose logging if you are having Setup problems that cannot be diagnosed with a default log file.

- **Generating a Verbose Log File**

On the initial install of Office, verbose logging is not used but if a Setup failure occurs, the second try to install will generate a verbose log file. However, the logging options that are used for these verbose log files are not all the options that are available to the Windows Installer. If you want to create a more detailed Windows Installer log file with all the logging options, you can use the **v* parameter combination for the **/L** switch.

Note You can create a verbose log file while you perform an administrative installation of Office by using a command line that is similar to the following:

```
path\setup.exe /a path\Pro11.msi /L*v C:\Verboselog.txt
```

Diagnosing When Setup Stops Responding

At times, Office Setup stops responding (hangs), and you do not receive any error message. The best thing to do in this situation is to restart your computer, and run Office Setup again with complete verbose logging turned on (with one additional option). To do this, start Office Setup. To do so, follow these steps:

1. Click **Start**, and then click **Run**.
2. In the **Open** box, type the following command line, and then click **OK**:

```
path\Setup.exe /L*v! C:\Verboselog.txt
```

Note that *Path* is the full path of your Office source location.

Typically, 19 lines of logging information are cached in memory before being written to the verbose log file. If you do not use the **!** option for the **/L** (logging) switch, you may lose some of the cached information or all the cached information if Setup stops. If you use the **!** option, the most you lose is one line, because the **!** option forces Setup to write logging information to the log file one line at a time (there is no caching of information).

After you create the verbose log file, scroll to the end and look at the last one or two lines. These lines tell you what Setup was trying to do when it stopped.

Repair problems in the installed 2007 Office programs and features

While using MS Office application you find that MS Office is crashing or hangs then the best way to deal with such situation is to repair MS Office application. Perform. You can use either of the following methods to detect and to repair problems that are associated with installed Microsoft Office programs and features, such as registry settings and missing installation files. You cannot use these methods to repair personal files.

Method 1: Run Office Diagnostics from a 2007 Office program

1. Start the Office Diagnostics tool. To do this, use either of the following methods:
 - For a menu-based 2007 Office program, click **Office Diagnostics** on the **Help** menu.
 - For a ribbon-based 2007 Office program, follow these steps:
 - a. Click the **Microsoft Office Button**, and then click **Program Options**.

Note In this option, *Program* represents the name of the program.

- b. In the Navigation Pane, click **Resources**.
- c. Click **Diagnose**.

Click **Continue**.

Click **Start Diagnostics**.

If the Office Diagnostics tool identifies a problem, it tries to fix the problem.

When the Office Diagnostics tool finishes, click **Close**.

Note: You can also run Microsoft Office Diagnostics from Start menu. To do so, click **Start**, point to **All Programs**, point to **Microsoft Office**, point to **Microsoft Office Tools**, and then click **Microsoft Office Diagnostics**.

Method 2: Run the Detect and Repair tool from Add or Remove Programs

1. Click **Start**, and then click **Control Panel**.
2. If you are running Microsoft Windows Vista or Microsoft Windows 7, do the following:
 - a. Click **Programs**, and then click **Uninstall a Program**.
 - b. Click the name of the **Microsoft Office Edition 2007** you want to change, and then click **Change**.
 - c. Click **Repair**, and then click **Continue**.

Note In Classic view on Windows Vista or in Icon View on Windows 7, double-click **Programs and Features**. Click the name of the **Microsoft Office Edition 2007** you want to change, and then click **Change**. Click **Repair**, and then click **Continue**.

If you are running Microsoft Windows XP, do the following:

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- a. Click Add or Remove Programs.
- b. Click the name of the Microsoft Office Edition 2007 you want to change, and then click **Change**.
- c. Click **Repair**, and then click **Continue**.

Note In Classic view, double-click Add or Remove Programs, click the name of the **Microsoft Office Edition 2007** you want to change, and then click **Change**. Click **Repair**, and then click **Continue**.

Troubleshooting Specific Installation Scenarios

Problem 1

When you enter the product key for Microsoft 2007 Office applications or Office 2003 applications, an error message indicates that the product key is invalid:

You have not entered a valid product key.

Please check the number located on the sticker on the back of the CD case or on your Certificate of Authenticity.

Cause: This issue occurs because one of the following scenarios has occurred:

- You installed a Microsoft Office 2007 suite from a retail box that you purchased from a retail store.
- You used the product key that appears on a sticker located on the bottom of your laptop or on your desktop case.

Solution

The following resolutions apply to the Microsoft Office 2007 and the Microsoft Office 2003 suite.

Method 1

1. If you installed a Microsoft Office 2007 suite from a retail box that you purchased from a retail store, then open **Control Panel**. Then, open **Add or Remove Programs** or **Programs and Features** and verify if there is another copy of an Office 2007 suite installed in addition to the suite you have already installed.
2. Preinstalled Office 2007 trial suites frequently conflict with the product key validation process. If you see a copy of Office 2007 suite installed, such as a trial version or a version labeled "2007 Microsoft Office system", then uninstall that suite and the Office Activation Assistant. Then, enter the product key again when you are prompted.

Note: *You do not need to uninstall Office Activation Assistant if this item is not displayed in **Add or Remove Programs** or **Programs and Features**.*

Method 2

The 25-digit product key that you found on a sticker on the bottom of your laptop or on your desktop case is not the correct key. This key is the product key for Windows and not for the Office 2007 suite. The correct product key for the Office 2007 suite will be in one of the following locations:

- Inside the retail Office 2007 box if you purchased your product from a retail store.
- In an e-mail message from the online Web site where you purchased the Office 2007 suite.
- On a sticker located on the outside of the CD case.

Problem 2

When you try to install the 2007 Microsoft Office suite Service Pack 1 (SP1) from Microsoft Update, you receive the following error message:

Installation Failure: Windows failed to install the following update with error 0x80070643: 2007 Microsoft Office Suite Service Pack 1 (SP1).

When you try to install the 2007 Microsoft Office suite Service Pack 1 (SP1) from the Setup file, you receive the following error message:

2007 Microsoft Office Suite Service Pack 1 (SP1) has stopped working.

Cause: The installation of the 2007 Microsoft Office suite Service Pack 1 (SP1) fails with error 1935 or with error 78F. This failure occurs when the Windows Installer encounters a reference either to a drive that no longer exists or to a removable media device that contains no readable media. For example, this failure may occur when the Windows Installer encounters a reference to an empty DVD drive or to an empty CD drive. The issue is not caused by the update design of the 2007 Microsoft Office suite Service Pack 1 (SP1).

Solution

This issue is resolved by update 946691 for the 2007 Office system. To work around the issue, you can remove/reinstall Microsoft Office 2007.

Problem 3

You try to install a 2007 Microsoft Office suite or standalone program or an Office 2010 suite or standalone program by double-clicking an .msi file. When you do this, you receive one of the following error messages:

Error 1713

MSI_package_name cannot install one of its required products. Contact your technical support group.

Or

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MSI Error 41

Contact your administrator or product vendor for assistance.

Cause: This issue occurs by design in the 2007 Office and Office 2010 products. You cannot install a 2007 Office suite or an individual 2007 Office program, or an Office 2010 suite or individual program by running an .msi file that is provided in the Office suites.

Solution

To resolve this issue, you must run the Setup.exe file. To do this, locate the Setup.exe file in the root folder of the installation source, and then double-click the file.

Troubleshooting Un-installation Issues

If you cannot remove MS Office using Add or Remove programs feature (or Programs and Features in Windows Vista) in Control Panel, verify the same.

For Windows XP:

- Click **Start**, click **Run**, type control **appwiz.cpl** in the Open box, and then press ENTER.
- Click to select the 2007 Office system product from the application list, and then click **Remove**.

For Windows Vista:

- Click **Start**, type **programs and features in the** Search box, and then press ENTER.
- Click to select the product to be uninstalled from the listing of installed products, and then click **Uninstall/Change** from the bar that displays the available tasks.

If you were unable to uninstall the 2007 Microsoft Office system, you may have issues with the Add or Remove Programs dialog box, or some 2007 Microsoft Office components may not be uninstalled. In these cases, you may be unable to reinstall the 2007 Microsoft Office system.

To uninstall the existing 2007 Microsoft Office system if you cannot uninstall it by using the Add or Remove Programs feature, follow these steps:

1. Remove any remaining Windows Installer packages of the 2007 Microsoft Office system.
2. Stop the Office Source Engine service
3. Remove any remaining 2007 Microsoft Office installation folders
4. Remove any remaining 2007 Microsoft Office installation files
5. Remove the registry subkeys of the 2007 Microsoft Office system and restart the computer.

Step 1: Remove any remaining Windows Installer packages of the 2007 Microsoft Office system:

1. Click **Start**, click **Run**, type **installer**, and then click **OK**. This process opens the %windir%\Installer folder.
2. On the **View** menu, click **Details**.

Important To use the **View** menu in Windows Vista, you must press the ALT key first to display the menu bar, and then click the **View** menu.

3. On the **View** menu, click **Choose Details**.
4. Click to select the **Subject** check box, type **340** in the **Width of selected column (in pixels)** box, and then click **OK**.

Note: *It may take several minutes for the subjects to appear next to each .msi file.*

5. For Windows XP, on the **View** menu, point to **Arrange icons by**, and then click **Subject**.

For Windows Vista, on the **View** menu, point to **Sort By**, and then click **Subject**. In Windows Vista, a **User Account Control** dialog box may be displayed with the following warning:

An unidentified program wants access to your computer

Click **Allow** when you see this warning message.

6. For each .msi file where the subject is "Microsoft Office *Product_Name* 2007," right-click the .msi file, and then click **Uninstall**.

Note: *Product_Name is a placeholder for the name of the 2007 Microsoft Office product.*

Step 2: Stop the Office Source Engine service:

1. For Windows XP and Windows Server 2003, click **Start**, click **Run**, type **services.msc** in the **Open** box, and then click **OK**.
1. For Windows Vista, click **Start**, click **Start Search**, type **services.msc**, and then press ENTER.
2. In the **Services** window, determine whether the Office Source Engine service is running. If this service is running, right-click **Office Source Engine**, and then click **Stop**.
3. Close the **Services** window.

Step 3: Remove any remaining 2007 Microsoft Office installation folders

1. For Windows XP and Windows Server 2003, click **Start**, click **Run**, type **%CommonProgramFiles%\Microsoft Shared** in the **Open** box, and then click **OK**.

For Windows Vista, click **Start**, click **Start Search**, type **%CommonProgramFiles%\Microsoft Shared**, and then press ENTER.

Note: On a computer that is running a 64-bit version of Windows Vista, type **%CommonProgramFiles(x86)%\Microsoft Shared**, and then press ENTER.

2. If the following folders are present, delete them:

- Office12
- Source Engine

3. For Windows XP and Windows Server 2003, click **Start**, click **Run**, type **%ProgramFiles%\Microsoft Office**, and then click **OK**.

Note On a computer that is running a 64-bit version of Windows XP, type **%ProgramFiles(x86)%\Microsoft Office**, and then press ENTER.

For Windows Vista, click **Start**, click **Start Search**, type **%ProgramFiles%\Microsoft Office**, and then press ENTER.

Note: On a computer that is running a 64-bit version of Windows Vista, type **%ProgramFiles(x86)%\Microsoft Office**, and then press ENTER.

4. On the root folder of each hard disk drive, locate and then open the MSOCache folder. If you cannot see the MSOCache folder, follow these steps:
 - a. Open Windows Explorer, and then on the **Tools** menu click **Folder Options**.
 - b. Click the **View** tab.
 - c. In the **Advanced settings** pane under **Hidden files and folders**, click **Show hidden files and folders**.
 - d. Click to clear the **Hide protected operating system files** check box, and then click **OK**.

Open the *drive_letter*:\MSOCache\All Users folder, and then delete every folder that has the following text in the folder name:

0FF1CE)-

Note This text contains a zero and a one for the letters "O" and "I."

Step 4: Remove any remaining 2007 Microsoft Office installation files

1. For Windows XP and Windows Server 2003, click **Start**, click **Run**, type **%appdata%\microsoft\templates**, and then click **OK**.

For Windows Vista, click **Start**, click **Start Search**, type **%appdata%\microsoft\templates**, and then press ENTER.

2. Delete the following files:
 - Normal.dotm
 - Normalemail.dotm
3. For Windows XP and Windows Server 2003, click **Start**, click **Run**, type **%appdata%\microsoft\document building blocks\Language_ID**, and then click **OK**.

For Windows Vista, click **Start**, click **Start Search**, type **%appdata%\microsoft\document building blocks\Language ID**, and then press ENTER.

Notes

- *If you cannot open this folder because the folder does not exist, go to step 6.*
 - *Language_ID is a placeholder for the four-digit number that represents the language of the 2007 Microsoft Office system. For example, if you use the English version of the 2007 Microsoft Office system, the Language_ID value is 1033. If the Language_ID is not known, type **%appdata%\microsoft\document building blocks**, and then open the subfolder in that location.*
4. Delete the Building blocks.dotx file.
 5. For Windows XP and Windows Server 2003, click **Start**, click **Run**, type **%temp%**, and then click **OK**.

For Windows Vista, click **Start**, click **Start Search**, type **%temp%**, and then press ENTER.

6. On the **Edit** menu, click **Select All**.
7. On the **File** menu, click **Delete**.
8. For Windows XP and Windows Server 2003, click **Start**, click **Run**, type **%AllUsersprofile%\Application Data\Microsoft\Office\Data**, and then click **OK**.

For Windows Vista, click **Start**, click **Start Search**, type **%AllUsersprofile%\Application Data\Microsoft\Office\Data**, and then press ENTER.

9. Delete only the Opa12.dat file.

Step 5: Remove the registry subkeys of the 2007 Microsoft Office system

Important This section, method, or task contains steps that tell you how to modify the registry. However, serious problems might occur if you modify the registry incorrectly. Therefore, make sure that you follow these steps carefully. For added protection, back up the registry before you modify it. Then, you can restore the registry if a problem occurs.

Locate and then delete the registry subkeys of the 2007 Microsoft Office system if they are present. To do this, follow these steps:

- a. For Windows XP and Windows Server 2003, click **Start**, click **Run**, type **regedit**, and then click **OK**.

For Windows Vista, click **Start**, click **Start Search**, type **regedit**, and then click **OK**.

- b. Click the following subkey:

HKEY_CURRENT_USER\Software\Microsoft\Office\12.0

- c. On the **File** menu, click **Export**, type **DeletedKey01**, and then click **Save**.
- d. On the **Edit** menu, click **Delete**, and then click **Yes** to confirm the deletion.
- e. For each registry subkey in the following list, repeat steps 1a through 1d. Change the name of the exported key by one for each subkey.

For example, type **DeletedKey02** for the second key, type **DeletedKey03** for the third key, and so on.

Note: In the following registry keys, the asterisk character (*) represents one or more characters in the subkey name.

32-bit versions of Microsoft Windows:

- HKEY_CURRENT_USER\Software\Microsoft\Office\12.0
- HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Office\12.0
- HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Office\Delivery\SourceEngine\Downloads*0FF1CE}-*
- HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall*0FF1CE*
- HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Installer\UpgradeCodes*F01FEC
- HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Installer\UserData\S-1-5-18\Products*F01FEC
- HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\ose
- HKEY_CLASSES_ROOT\Installer\Features*F01FEC
- HKEY_CLASSES_ROOT\Installer\Products*F01FEC
- HKEY_CLASSES_ROOT\Installer\UpgradeCodes*F01FEC
- HKEY_CLASSES_ROOT\Installer\Win32Assemblies*Office12*

64-bit versions of Microsoft Windows:

- HKEY_CURRENT_USER\Software\Microsoft\Office\12.0
- HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Office\12.0
- HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Office\Delivery\Source Engine\Downloads*0FF1CE}-*
- HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Windows\CurrentVersion\Uninstall*0FF1CE*
- HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Windows\CurrentVersion\Installer\UpgradeCodes*F01FEC
- HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Windows\CurrentVersion\Installer\UserData\S-1-5-18\Products*F01FEC
- HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\ose
- HKEY_CLASSES_ROOT\Installer\Features*F01FEC
- HKEY_CLASSES_ROOT\Installer\Products*F01FEC
- HKEY_CLASSES_ROOT\Installer\UpgradeCodes*F01FEC
- HKEY_CLASSES_ROOT\Installer\Win32Assemblies*Office12*

Locate the following registry subkey:

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall

Note: *On a computer that is running a 64-bit version of Windows, locate the following registry subkey instead:*

HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Windows\CurrentVersion\Uninstall

On the **File** menu, click **Export**, type **UninstallKey01**, and then click **Save**.

Under the Uninstall subkey that you located in step 2, click each subkey, and then determine whether the subkey has the following value assigned to it:

- **Name:** UninstallString
- **Data:** *file_name path*\Office Setup Controller\Setup.exe path

Note: *In this example, file_name is a placeholder for the name of an installation program, and path is a placeholder for the file path.*

If the subkey contains the name and the data that are described in step 4, click **Delete** on the **Edit** menu. Otherwise, go to step 4.

Repeat steps 4 and 5 until you locate and then delete every subkey that matches the name and the data that are described in step 4.

Close Registry Editor.

Step 6: Restart the computer

Restart the computer. If the uninstall was successful, you are finished and can now reinstall the 2007 Microsoft Office system if you want.

Troubleshooting Application Specific Errors**Error 1**

You receive an error using or starting Microsoft Word

Applies to: Microsoft Word

Cause and Solution:

Delete the Word Data registry key

Most of the frequently used options in Word are stored in the Word Data registry key. A common troubleshooting step is to delete the Word Data registry key. The next time that you start Word, Word rebuilds the Word Data registry key by using the default settings.

To view these options in Word 2002 or Word 2003, click **Options** on the **Tools** menu.

To view these options in Word 2007, click the Microsoft Office Button, and then click **Word Options**.

Note When you delete the Word Data registry key, Word resets several options to their default settings. One such option is the "most recently used file" list on the **File** menu. Additionally, Word resets many settings that you customize in the **Options** dialog box.

To delete the Word Data registry key, follow these steps:

1. Exit all Office programs.
2. Click **Start**, click **Run**, type **regedit**, and then click **OK**.
3. Locate the following registry subkey, as appropriate for the version of Word that you are running:

- o Word 2002:

HKEY_CURRENT_USER\Software\Microsoft \Office\10.0\Word\Data

- o Word 2003:

HKEY_CURRENT_USER\Software\Microsoft\ Office\11.0\Word\Data

- o Word 2007:

HKEY_CURRENT_USER\Software\Microsoft\ Office\12.0\Word\Data

- Word 2010:

HKEY_CURRENT_USER\Software\Microsoft\Office\14.0\Word\Data

4. Click **Data**, and then click **Export** on the **File** menu.
5. Name the file **Wddata.reg**, and then save the file to the desktop.
6. Click **Delete** on the **Edit** menu, and then click **Yes**.
7. Exit Registry Editor.
8. Start Word.

If Word starts and works correctly, you have resolved the problem. The problem was a damaged Word Data registry key. You may have to change several settings to restore your favorite options in Word.

If the problem is not resolved, restore the original Word Data registry key. Then, see the "Delete the Word Options registry key" topic.

To restore the original Word Data registry key, follow these steps:

1. Exit all Office programs.
2. Double-click the **Wddata.reg** icon on the desktop.
3. Click **Yes**, and then click **OK**.

Delete the Word Options registry key

The Word Options registry key stores those options that you can set in Word by changing menu options. The settings are divided into default settings and optional settings.

Default settings are created during Setup. You can change the default settings by changing options in Word. Optional settings are not created during Setup.

To delete the Word Options registry key, follow these steps:

1. Exit all Office programs.
2. Click **Start**, click **Run**, type **regedit**, and then click **OK**.
3. Locate the following registry subkey, as appropriate for the version of Word that you are running:
 - Word 2002:

HKEY_CURRENT_USER\Software\Microsoft\ Office\10.0\Word\Options

- Word 2003:

HKEY_CURRENT_USER\Software\Microsoft\ Office\11.0\Word\Options

- Word 2007:

HKEY_CURRENT_USER\Software\Microsoft\Office\12.0\Word\Options

- Word 2010:

HKEY_CURRENT_USER\Software\Microsoft\Office\14.0\Word\Options

4. Click **Options**, and then click **Export** on the **File** menu.
5. Name the file **Wdoptn.reg**, and then save the file to the desktop.
6. Click **Delete** on the **Edit** menu, and then click **Yes**.
7. Exit Registry Editor.
8. Start Word.

If Word starts and works correctly, you have resolved the problem. The problem was a damaged Word Options registry key. You may have to change several settings to restore your favorite options in Word.

If the problem is not resolved, restore the original Word Options registry key. Then, see the "Rename the Normal.dot or Normal.dotm global template file" topic.

To restore the original Word Options registry key, follow these steps:

1. Exit all Office programs.
2. Double-click the **Wdoptn.reg** icon on your desktop.
3. Click **Yes**, and then click **OK**.

Rename the Normal.dot or Normal.dotm global template file

You can prevent formatting, AutoText, and macros that are stored in the global template file from affecting the behavior of Word and of documents that you open. To do this, rename the global template file. When you restart Word in a typical way, Word creates a new global template file.

Important When you rename the global template file, several options are reset to their default settings. The options that are reset include custom styles, custom toolbars, macros, and AutoText entries. Therefore, we strongly recommend that you do not delete the global template file.

Certain kinds of situations can create more than one global template file. Examples of such situations are as follows:

- Multiple versions of Word are running on the same computer.
- Several workstation installations exist on the same computer.

In these situations, make sure that you rename the correct copy of the global template file.

To rename the global template file, follow these steps:

1. Exit all Office programs.
2. Click **Start**, click **Run**, type **cmd**, and then click **OK**.
3. Type the following command, as appropriate for the version of Word that you are running, and then press ENTER:
 - o Word 2002 and Word 2003:

```
ren%userprofile%\Application
Data\Microsoft\Templates\Normal.dot OldNormal.dot
```

- o Word 2007 and Word 2010:

```
ren%userprofile%\Application
Data\Microsoft\Templates\Normal.dotm OldNormal.dotm
```

4. Type **exit**, and then press ENTER.
5. Start Word.

If Word starts correctly, you have resolved the problem. In this case, the problem is a damaged global template file. You may have to change several settings to restore your favorite options.

The global template file that you renamed may contain customizations that cannot be easily re-created. These customizations may include styles, macros, or AutoText entries. In this case, you may be able to copy the customizations from the old global template file to the new global template file by using the Organizer.

For more information about how to use the Organizer to rename macros, click **Microsoft Word Help** on the **Help** menu, type **rename macros** in the **Search for** box, and then click **Search** to view the topic.

To restore the original global template file, follow these steps:

1. Exit all Office programs.
2. Click **Start**, click **Run**, type **cmd**, and then click **OK**.
3. Type the following command, as appropriate for the version of Word that you are running, and then press ENTER:
 - o Word 2002 and Word 2003:

```
ren %userprofile%\Application Data\Microsoft\Templates\OldNormal.dot
Normal.dot
```

- o Word 2007:

```
ren %userprofile%\Application Data\Microsoft\Templates\OldNormal.dotm
Normal.dotm
```


4. Type **exit**, and then press ENTER.
5. Start Word.

Disable the Startup folder add-ins

When you start Word, Word automatically loads templates and add-ins that are located in the Startup folders. Problems in Word may be the result of conflicts or of problems with an add-in. To determine whether an item in a Startup folder is causing the problem, temporarily disable the registry setting that points to these add-ins.

To do this, follow these steps:

1. Exit all Office programs.
2. Use one of the following procedures, as appropriate for the version of Word that you are running:

- Word 2002:

Click **Start**, click **Run**,

Type **%programfiles%\Microsoft\Office\Office10\Startup**, and then click **OK**.

- Word 2003:

Click **Start**, click **Run**,

Type **%programfiles%\Microsoft\Office\Office11\Startup**, and then click **OK**.

- Word 2007:

Click **Start**, click **Run**,

Type **%programfiles%\Microsoft\Office\Office12\Startup**, and then click **OK**.

- Word 2010:

Click **Start**, click **Run**, type **%programfiles%\Microsoft**

Office\Office14\Startup, and then click **OK**.

3. Right-click one of the files that is contained in the folder, and then click **Rename**.
4. After the file name, type **.old**, and then press ENTER.

Important Note the original name of the file. Later, you may have to rename the file by using its original name.

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5. Start Word.
6. If you can no longer reproduce the problem, you have found the specific add-in that causes the problem. If you must have the features that the add-in provides, contact the vendor of the add-in for an update.

If the problem is not resolved, rename the add-in with its original name, and then repeat steps 3 through 5 for each file in the Startup folder.

7. If you can still reproduce the problem, click **Start**, click **Run**, type **%userprofile%\Application Data\Microsoft\Word\Startup**, and then click **OK**.
8. Repeat steps 3 through 5 for each file in this Startup folder.

If the problem is not resolved after you disable the Startup folder add-ins, see the "Delete the COM add-ins registry key" topic.

Delete the COM add-ins registry keys

COM add-ins can be installed in any location. Programs that interact with Word install COM add-ins. Delete the registry keys for the COM add-ins, and then restart Word.

To delete the COM add-ins registry keys, follow these steps:

1. Exit all Office programs.
2. Click **Start**, click **Run**, type **regedit**, and then click **OK**.
3. Locate the following registry subkey, as appropriate for the version of Word that you are running:

- Word 2002:

HKEY_CURRENT_USER\Software\Microsoft\Office\10.0\Word\Addins

- Word 2003:

HKEY_CURRENT_USER\Software\Microsoft\Office\11.0\Word\Addins

- Word 2007:

HKEY_CURRENT_USER\Software\Microsoft\Office\12.0\Word\Addins

- Word 2010:

HKEY_CURRENT_USER\Software\Microsoft\Office\14.0\Word\Addins

4. Click **Addins**, and then click **Export** on the **File** menu.
5. Name the file **WdaddinHKCU.reg**, and then save the file to the desktop.
6. Click **Delete** on the **Edit** menu, and then click **Yes**

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7. **Locate** the following registry subkey:

HKEY_LOCAL_MACHINE\Software\Microsoft\Office\Word\Addins

8. Click **Addins**, and then click **Export** on the **File** menu.
9. Name the file **WdaddinHKLM.reg**, and then save the file to the desktop.
10. On the **Edit** menu, click **Delete**, and then click **Yes**.
11. **Exit** Registry Editor.
12. Start Word.

If the problem is resolved, you have determined that a COM add-in program is causing the problem. Next, you must determine which COM add-in program is causing the problem.

Determine which COM add-in program is causing the problem

To do this, follow these steps:

1. Exit all Office programs.
2. Double-click the **Wdaddin.reg** icon on your desktop.
3. Click **Yes**, and then click **OK**.
4. If you are using Word 2007, go to step 5
5. If you are using Word 2002 or Word 2003, follow these steps:
 - a. Start Word, and then click **Customize** on the **Tools** menu.
 - b. In the **Customize** dialog box, click **Commands**.
 - c. In the **Categories** list, click **Tools**.
 - d. In the **Commands** list, click **COM Add-Ins**, and then drag the command to one of the toolbars. Close the **Customize** dialog box.

Use one of the following procedures, as appropriate for the version of Word that you are running:

Word 2002 and Word 2003:

- a. Click **COM Add-Ins** on the toolbar. You added this to the toolbar in step 4.
- a. If an add-in is listed in the **COM Add-Ins** dialog box, click to clear the add-in check box. If more than one add-in is listed, click to clear only one add-in check box at a time. This procedure helps determine which add-in is causing the problem.
- b. Click **OK** to close the **COM Add-Ins** dialog box.
- c. On the **File** menu, click **Exit**.

Word 2007:

- d. Click the **Microsoft Office** Button, and then click **Word options**.
- e. Click **Add-ins**.
- f. In the **Manage** list, click **COM Add-ins**, and then click **Go**.
- g. If an add-in is listed in the **COM Add-Ins** dialog box, click to clear the add-in check box. If more than one add-in is listed, click to clear only one add-in

check box at a time. This procedure helps determine which add-in is causing the problem.

h. Click **OK** to close the **COM Add-Ins** dialog box.

Click the Microsoft Office Button, and then click **Exit Word**.
Start Word.

If the problem is resolved when you start Word, you have determined which COM add-in is causing the problem. If you must have the features that the add-in provides, you must determine which add-in includes those features, so that you can contact the vendor for an update.

If the problem is not resolved when you start Word, repeat steps 5 and 6 for each COM add-in that is listed. Repeat this procedure for each add-in, until you determine which add-in is causing the problem.

To restore the COM add-ins, repeat step 5, but click to select the check box for each COM add-in that you want to restore.

Error2

"This command is not available because the document is locked for edit."

Applies to: All Office Applications

Cause and Solution: This message crops up when you try to create a new document or edit an existing document. Many menu items also may appear dimmed and unavailable. This problem usually occurs because an Office product hasn't been activated and can only perform with limited functionality.

You can verify whether the product has been activated, as well as start the activation process, by selecting Help, Activate Product. If the product is already activated, a dialog box will confirm it. Otherwise, the Activation Wizard will walk you through the process. After the activation process, exit and restart the program. All functionality should now be available.

Error 3

"Cannot delete (file name). Access is denied. Make sure the disk is not full or write-protected and the file is not currently in use." (Win98)

"Cannot delete (file name) . Access is denied. The source file may be in use." (WinMe)

"Cannot delete (file name). This file is in use by the following program: (program name). You must close the file before proceeding." (Win XP)

Applies to: Excel 2002, PowerPoint 2002, Word 2002

Cause and Solution: If you try to delete a file using either the Open or Save As dialog box from within Word, Excel, or PowerPoint, you may encounter one of the above error messages. All indicate the same two possible problems: Either the file you want to delete is

open in another program, or you're trying to access a file that you don't have permission to delete.

If you're on a network, multiple individuals may be using the same file. The first person who opens the file has full access; everyone else has read-only access.

The same problem can occur if a file is open in two different programs. Before you can delete the file, you (or someone else) must close it in the other program.

You also may be accessing a file you don't have permission to delete. This generally occurs when users access files over a network. If you believe the file access permissions are set incorrectly, contact your network administrator for assistance.

Troubleshooting Printing Problems

Scenario 1

Nothing happens when you try to print a document or file.

Solution

Printing from your computer is primarily controlled by settings in Microsoft Windows. Determine whether your printer setup in Windows is correct by using the Windows Printing Troubleshooter.

Scenario 2

You cannot remove the gray shading from your print job.

Solution:

- On the **File** menu, click **Print**.
- In the Print style box, click the print style you want to use.
- Click **Page Setup**.
- To remove shading, clear the Print using gray shading check box.

Scenario 3

You cannot remove border from the print job.

Solution:

- On the **File** menu, point to **Page Setup**, and then click **Table Style**.
- Click the **Header/Footer** tab.
- Delete all entries in the **Header** or **Footer** boxes.

Scenario 4

The printer settings are not reflected when you print a view.

Solution

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In the Print dialog box, click Page Setup. All printing options must be selected in the Page Setup dialog box, including font styles and sizes. Font styles and sizes set when you create a view are ignored when the view is printed.

Scenario 5

Print options change

Solution

Each view has its own print options. When you change views, the print options change. For example, to see the print options relating to the Calendar, you must be in Day/Week/Month view or another Calendar view. When you print an e-mail message formatted as HTML, or a new message using Microsoft Word as your e-mail editor, the print options will be different.



Check your understanding

1. Microsoft Outlook 2000 can be installed on Windows 98 SE edition?
True/False
2. What is the minimum RAM required to install MS Outlook 2000 on Windows NT Workstation edition?
3. What is the minimum disk space required to install MS Office XP Standard edition?
4. What is the minimum display settings required to install MS Office XP Professional edition?
5. What is the recommended processor for installing MS Outlook 2003?
6. How much disk space is required to install MS Outlook 2007?
7. What is the recommended processor for installing MS Office 2010?
8. Office 2010 is not compatible with Windows Server 2003?
True/False
9. iYogi supports MS Access database connections?
True/False
10. iYogi provides the complete support on How to issues of MS Excel?
True/False
11. Name the other Bloatwares?
12. Ravi is getting the following error message while installing MS Office 2007.
"Errors including Can't Copy File To Disk, Permission Denied, and Can't Access Hard Disk"
What can be the possible cause?
13. You are trying to install the MS Office 2007 and you get the following error:
"Product ID, validation code, or unlock code does not work"
Tell how will you check the installation logs and how will you fix the issue?
14. When you try to install the 2007 Microsoft Office suite Service Pack 1 (SP1) from Microsoft Update, you receive the following error message:

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"Installation Failure: Windows failed to install the following update with error 0x80070643: 2007 Microsoft Office Suite Service Pack 1 (SP1)"

Tell the possible cause of this issue and how will you resolve it?

15. Ravi is trying to print a word document but getting gray shading while printing? Help him to resolve the issue?

Day 3: CD/DVD Burning Applications, Digital Cam, and MP3 Player

Module Objectives:

By the end of this module you will understand:

CD /DVD Burning Application

- Discuss iYogi supported burning Software.
- Discuss Support Boundaries for CD/DVD burning software.
- Discuss Installation process.
- Discuss Un-installation process.
- Working with the Burning application software.
- Configure and troubleshoot common issues.

Digital Cam

- Help connect the right cables and connectors.
- Install / update the latest drivers, software & updates for Digital Camera.
- Installing the software and sync the Digital Camera with the PC.

Mp3 Player

- Install / Update the latest software & updates.
- Scan & remove device conflicts with any other devices during Setup.
- Installing the software and sync MP3 player with the PC.

CD /DVD Burning Application

CD/DVD burning application/ Optical disc authoring software is computer software for assembling source material — video, audio, documents, or any other data — into the proper logical volume format to then be recorded ("burned") onto an optical disc (typically a compact disc or DVD).

Process to burn an optical disc:

1. Create an optical disc image with a full file system designed for the optical disc
2. Burn the image to the disc

Some of the commonly installed CD/DVD burning applications on Windows operating system are Adobe Encore DVD, Alcohol 120%, Ashampoo Burning Studio, AVS Video Converter, AVS Video Editor, Blindwrite, CDRWIN, CloneCDClone, DVDDeepBurner, DiscJuggler, Easy Media Creator, GEAR Video, MagicISO, Nero OEM, Netblender, PowerISO, Roxio, Cheetah Burner, Ulead DVD software, and UltraISO.

iYogi supports the following CD/DVD burning applications:

- Nero CD/DVD Burning Applications
- Roxio CD/DVD Burning Applications
- ImgBurn Burning Applications

CD/DVD Burning Application – System Requirements

System Requirement Comparison	Nero 10	Roxio Creator 2010	ImgBurn
Operating Systems	Windows XP SP3 (32bit), Windows Vista SP1 (32 and 64bit), Windows 7 Home Premium, Professional or Ultimate (32 and 64bit)	Windows Vista (32- or 64-bit), SP1 is required, Windows XP SP3 (32- or 64-bit), Windows 7 Home Premium, Professional or Ultimate (32-or 64-bit).	Windows 95, Windows 98, Windows Me, Windows NT4, Windows 2000, Windows XP, Windows 2003, Windows Vista, Windows 2008 and Windows 7 (including all the 64-bit versions)
Processor	2 GHz AMD or Intel processor	Intel 1.6 GHz Pentium 4 processor or AMD equivalent	Pentium IV 1.7 Ghz
RAM	512 MB RAM (1 GB RAM for Windows Vista or Windows 7)	512 MB RAM for Windows XP and 1GB RAM for Windows Vista and Windows 7	Minimum 512 MB
Hard Disk	5 GB hard drive space for a typical installation of all components (including templates, content and temporary disk space)	At least 3 GB free space	2 GB

Nero CD/DVD Application

Nero is a popular CD/DVD burning application designed for Microsoft Windows. The software enables a Windows user to create:

- Make Bootable discs
- Make Audio CD
- Make Video CD
- Make Data CD
- Copy CD
- Copy DVD

Nero- Installation Process

To install Nero application on Microsoft Windows, follow the below steps:

- Download the software from the manufacture's website.
- To install the software post downloading, you will need to follow the below steps:
 1. Click Next button to initiate the installation process.
 2. Click Next button to continue. Enter the serial number.
 3. Accept the license agreement and then click Next button.
 4. Choose the setup type as per your requirements.
 5. Read the privacy statement.
 6. Click Install to initiate the installation process.
 7. Wait for the installation process to complete. This might take some time.

Nero CD/DVD Application – Troubleshooting

Situation 1

You have problem downloading Nero 10 from the website.

Solution

In some cases our servers could be down, or we may have an unusual amount of traffic on our website at the time you have attempted a download. In these instances, all you need to do is try again at a later time that same day. If it's over the weekend and the server is down, wait till the following Monday and we will have the problem resolved. We do provide up to 6 servers to download from. It's unlikely all 6 are down at the same time.

In most cases, the problem is not at our end of the connection. To resolve issues at your end, you should do the following:

- Disable any anti-virus program, Norton Protection or similar programs.

- If you are at work, you may need to approach your IT administrator, as you may have a firewall preventing such downloads.
- Contact your Internet Service Provider.
- Try downloading from another computer.
- Any kind of popup blocker could also cause problems. Please disable them while you download.

Situation 2

CRC (Cyclic Redundancy Check) errors during installation

Cause: This is a common error message when you have a corrupted download. This can be caused by Firewall or Anti-Virus protection.

Solution

Disable Firewall or Anti-Virus protection, and then download and install our latest releases of our software. You may want to download from another system and then bring over to your system and install.

Situation 3

Nero does not accept your serial number.

Cause: Few reasons are discussed underneath:

1. Latest update is not installed.
2. Typing Errors.
3. Nero version 10.0 is not compatible with your computer.

Solution

Follow the below steps to resolve the above problem:

1. Make sure that the latest update of your Nero version is installed.
2. Make sure that you're not having any typing errors.
3. Make sure that the correct Nero version is installed on your PC.

In case all the above resolutions fall short to resolve the issue, then contact the Nero customer service.

Situation 3

You receive the below error message during Nero 6 installation process:

'An error occurred while trying to copy a file I/O error 112'

Cause: Few causes for the above error message could be:

1. Simultaneous installation of another software.

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2. Difficulty reading the disk.

Solution

Follow the below steps to solve the above error:

1. Do not install any other software concurrently while performing Nero 6 installation.
2. Clean your disk.

Situation 4

When installing Nero 10, your virus scanner detects spyware or a virus.

Solution

You may be sure that our software does not contain any viruses or spyware. Our web versions are checked for viruses before they are uploaded to our web page and there is a permanent virus scan running on our ftp servers. Therefore we can rule out the probability that your PC got infected by our files. If you will get a virus warning please check that your virus scanner has the latest updates or virus definitions installed.

If you still get a warning message during the installation, please deactivate your virus scanner for the installation process of Nero. Disconnect from the internet prior to deactivating your virus scanner.

Nero CD/DVD Application – Un-installation

To uninstall Nero 10 or individual components, you will need to follow the below steps:

1. **Insert** the Nero 10 into the CD/ DVD drive.
2. The Setup program is installed automatically. An installation menu appears, in which you can select the components you wish to delete. Click on appropriate button to start the installation wizard.
3. In the window, you can once again see the components you wish to uninstall. Click on **Next** to continue uninstalling.
4. Click on '**Remove**' and confirm by clicking on the '**Next**' button. The uninstall wizard opens up.
5. The Nero 10 uninstall wizard then automatically removes the desired components. Once the uninstall is complete, click on '**Finish**'.
6. **Restart** your computer so that the changes will take effect.

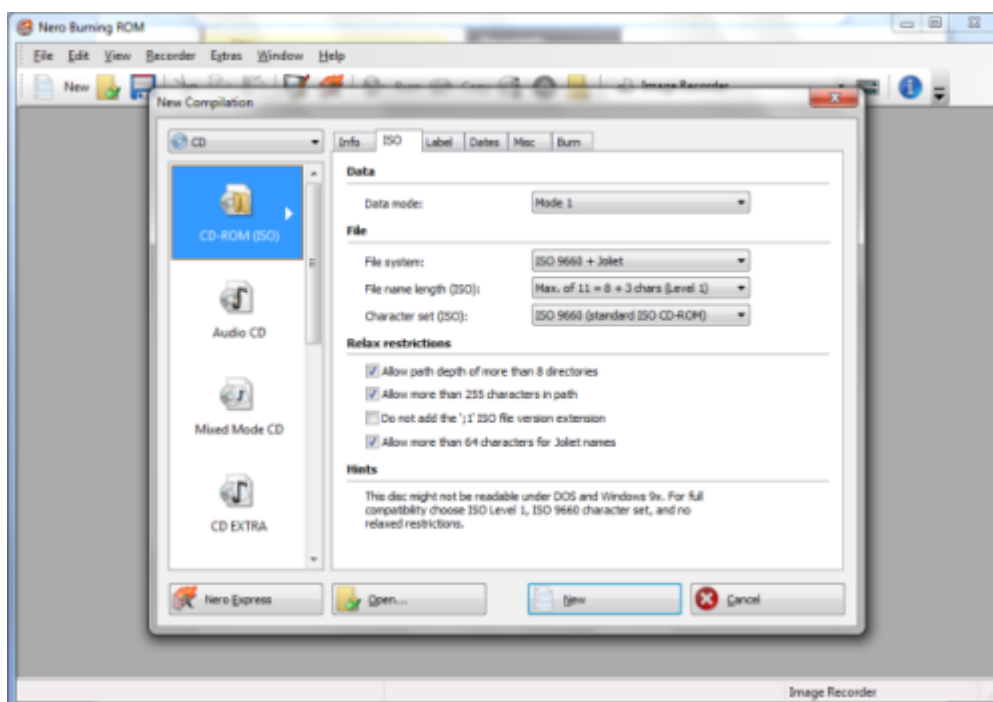
Nero CD/DVD Application – How to access

To access Nero application you can use any one of the following methods:

- Click **Nero** icon on the **System Tray**.
- Click **Start> Programs> Nero 10> Nero Burning ROM**;

The interface of Nero application looks like:


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





Nero 10 – Menu Options

File	Provides program facilities such as opening, saving, and closing. You can also open the setting options for the compilation, update the compilation, and define configuration options.
Edit	Provides editing facilities for the files in the selection screen such as cutting, copying, and deleting. You can also display the properties of a selected file.
View	Provides the option to customize the user interface and to refresh the file browser.
Recorder	Provides recorder facilities. You can select the recorder here, start the burn process, and erase a rewritable disc. You can also eject a disc and display disc information.
Extras	Provides the option to convert tracks into other formats and to save the songs on an Audio CD to the hard drive.
Window	Provides the option to alter the position of the compilation area and browser area.
Help	Provides help facilities such as opening the help, and shows information about the application.

Nero 10 – Configuration Options

	Opens the New Compilation window where you can set options for a burn or copy process.
---	--

	Opens an existing compilation.
	Saves the active compilation.
	Cuts selected elements in the compilation (selection).
	Copies selected elements of the compilation (selection).
	Pastes a selection that was cut or copied beforehand.
	Starts Nero CoverDesigner, which you can use to create labels and covers. Information about a current compilation such as title, number, and names of the files is incorporated into the document data. You will find further information in the Nero CoverDesigner manual.
	Starts Nero Express. Nero Express is a wizard-driven application based on Nero Burning ROM. You will find further information in the Nero Express manual.
	Starts the burn process by opening the Burn Compilation window containing the Burn tab.
	Starts the copy process by opening the New Compilation window containing the Burn tab.
	Displays information on the disc inserted, such as contents (if any) and capacity for instance.
	Opens the selected drive
	Shows or hides the file browser
Recorder selection menu	Displays available recorders
	Opens the Choose recorder window where you select an available recorder for the burn process from a list
	Opens the Burn Label window where you can create or load a label to print on the label or data side of a Labelflash DVD. This button is only available if a recorder that supports Labelflash is connected
	Launches Nero CoverDesigner to create or load a label to be printed on the label side of a LightScribe disc. This button is only available if a recorder that supports LightScribe is connected
	Displays information on the program and version number

Nero CD/DVD Burning Process

Follow the below steps to burn a CD or DVD:

1. First insert the blank CD/DVD in the optical drive, open Nero application and then select the appropriate option such as CD-ROM (ISO).
2. Click Open button to browse the files and folders and then select the desired and to add it for burning. Use Cut button to remove a file or folder from burning list.

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3. Click 'Burn' button to continue.

Troubleshooting Nero CD/DVD Burning

Situation 1

When trying to burn a disc using Nero, you encounter the below error message:

"The burn process has failed"

Cause: Three main causes for the above error message could be:

1. Outdated firmware of your recorder
2. Poor media quality (e.g. CD or DVD)
3. Write speed set too fast

Solution

To resolve the above problem, follow the below steps:

1. Please proceed as follows to find out the exact name of your recorder and your firmware version - you can use the Nero InfoTool to find this information. Download the file "InfoTool.zip" and save this file to your desktop.
 - Extract the zipped file on your hard drive using WinZip or WinRAR.
 - Double-click on the **EXE** file to start the Nero InfoTool. The window "Nero InfoTool - Retrieving Information" will open.
 - Please wait until the progress bar has moved completely to the right. The window "Nero InfoTool" will open.
 - Click on the **"Drive"** tab. The manufacturer and the model of the recorder are being displayed.
 - If necessary, use the drop-down menu at the top right margin of the window to select your recorder. In the top right corner you will see the firmware version.
 - Compare the displayed version with the information available on the website of the manufacturer of the recorder to see if a firmware update is available for your recorder.
 - If you do not have the current version, please contact the manufacturer of your recorder to get the latest firmware for your model.
 - Please note that an old firmware can cause compatibility problems as well as burn failures.
 - Firmware updates for your recorder are provided only by the manufacturer of your recorder.
 - All firmware updates and support for updating the firmware of your recorder must be provided by either the recorder manufacturer or the OEM you purchased your recorder bundle from. We are sorry not to be able to assist you in this.

2. Use another brand of media:

Try more than one brand of media. For Example: TDK, Verbatim, Imation, Yamaha, HP, etc.

Also contact the manufacturer of your recorder drive and ask for tested and recommended recordable for your recorder drive.

3. Change the write speed settings to a lower speed.

If the burn problem still persists, please contact Nero Technical Support and send the following information/files:

- A step-by-step description on how you proceeded
- Error messages as a screenshot
- The Log archive NeroSupport.cab



Check your understanding

1. While installing Nero 10 suite Ravi gets the following error:
"CRC (Cyclic Redundancy Check) errors during installation"
Give him the possible solution to fix this error?
2. While installing Nero 6 Ravi gets the following error:
"An error occurred while trying to copy a file I/O error 112"
Give him the possible solution to fix this error?
3. When trying to burn a disc using Nero, you encounter the below error message:
"The burn process has failed"
What is the cause of this error and how can you fix it?

Roxio CD/DVD Burning Application

Key Features for Roxio CD/DVD burning application are discussed below:

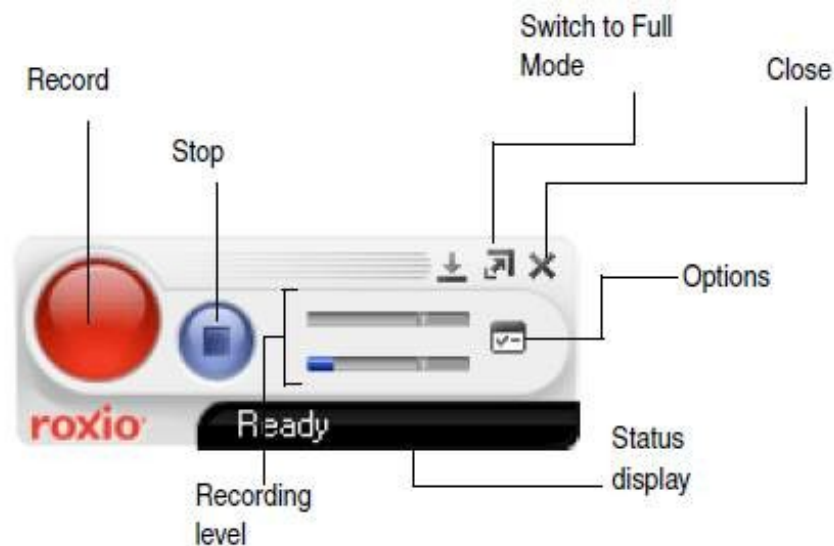
- Burn and copy CDs, DVDs or Blu-ray discs
- Edit movies and burn DVDs like a pro
- Rip CDs, digitize analog LPs, mix perfect playlists
- Create photo slideshows, cards, calendars, panoramas and more
- Share your creations on CD, DVD, mobile phone, iPod or YouTube

Roxio Creator 10 – Applications Embedded

Easy Audio Capture

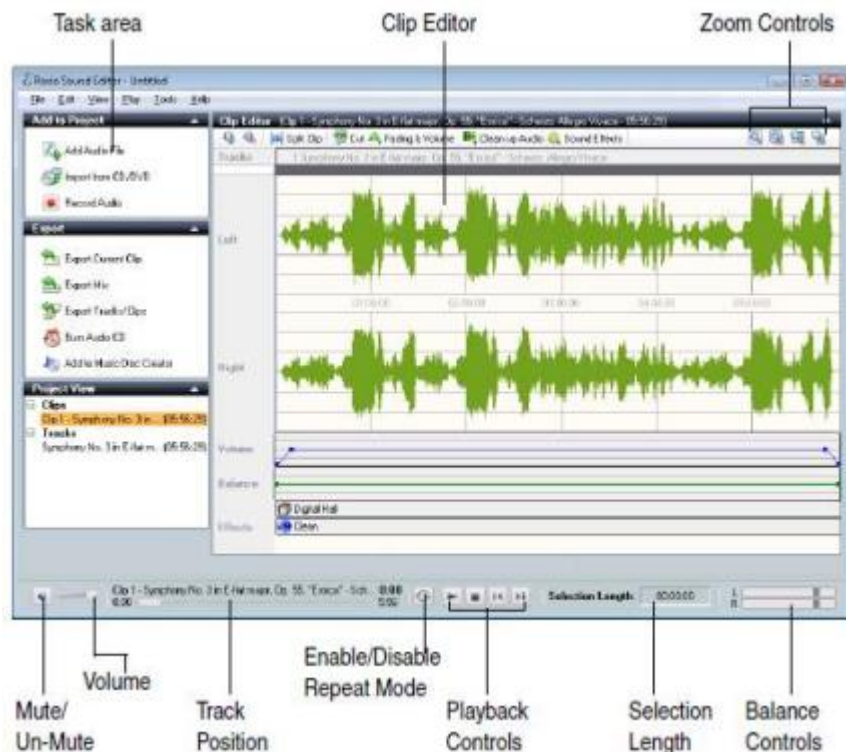
To record audio in mini mode follow these steps:

1. Optional: Click **Options** and customize capture options, including file format, encoder type, bit rate, and file location.
2. Click **Record** to start recording.
3. Click **Stop** to stop recording.



Sound Editor

The Sound Editor window provides an easy-to-use interface for adding audio clips to your project, editing your audio clips (improving quality or applying effects), and exporting your audio to a file or burning it to a disc.



Media Selector

The Media Selector lets you add tracks to your projects. You can keep the Media Selector open while you work, either as a floating window, or docked in the project track list area.

The Media Selector gives you several ways to find, manage, and select tracks to add to your project. For example, you can browse for tracks in the My Media or Folders views, preview tracks, or move or rename tracks.

To open the Media Selector, click Add Audio Tracks or Import from CD/DVD.

For more detailed information about Media Selector and all of its features, click Help or press F1 in the Media Selector.

To select and add tracks to your project:

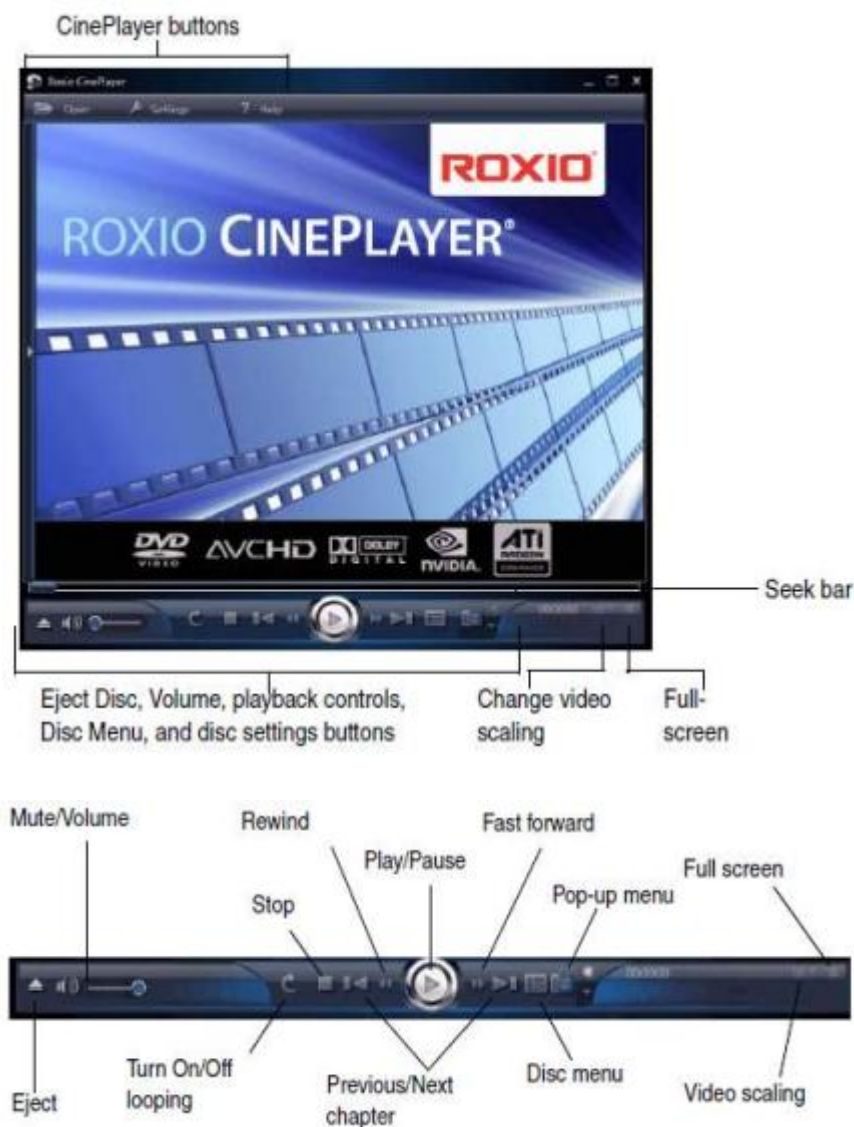
1. Click a **track** to select it, or press the **Ctrl** key to select more than one track at a time.
2. Click **Add**, or drag the tracks into the Track List area.

To dock or undock the Media Selector:

1. Click **Add** Audio Tracks or Import from CD/DVD.
2. The Media Selector opens in a window outside of the main project window.
3. Click the **Attach to main window** button in the bottom right corner of the window.
4. To undock the Media Selector, click the **Attach to main window** button in the top right corner of the Media Selector. The Media Selector opens in a separate window.

CinePlayer

CinePlayer provides the highest quality DVD and Blu-ray Disc playback available for your PC, and lets you take advantage of the enhanced interactive features now available on many movie discs.



Installing Roxio Creator 10

Follow these steps to install Roxio Creator:

To install Creator using the installation disc

1. **Insert** the Creator installation DVD into your DVD drive.
2. If Auto run is enabled on your computer, the Creator installation window appears automatically and you can skip step 2 and step 3.
3. Choose **Start > Run**.
4. Type d:\setup (substitute the appropriate letter of your DVD drive for d).
5. **Follow** the installation instructions that appear on the screen.

To install Creator using downloaded files:

1. **Navigate** to the Creator install package.
2. Double-click the **setup.exe** file.
3. Follow the on-screen instructions.



Roxio Creator 10 – Troubleshooting Installation

Situation 1

The installation process of Roxio Creator stops in between and you encounter the below error message:

'Roxio Easy Media Creator setup was interrupted. Your machine has not been modified. To install this program at a later time, please run the installation again.'

Cause: DirectXInstallService is not removed.

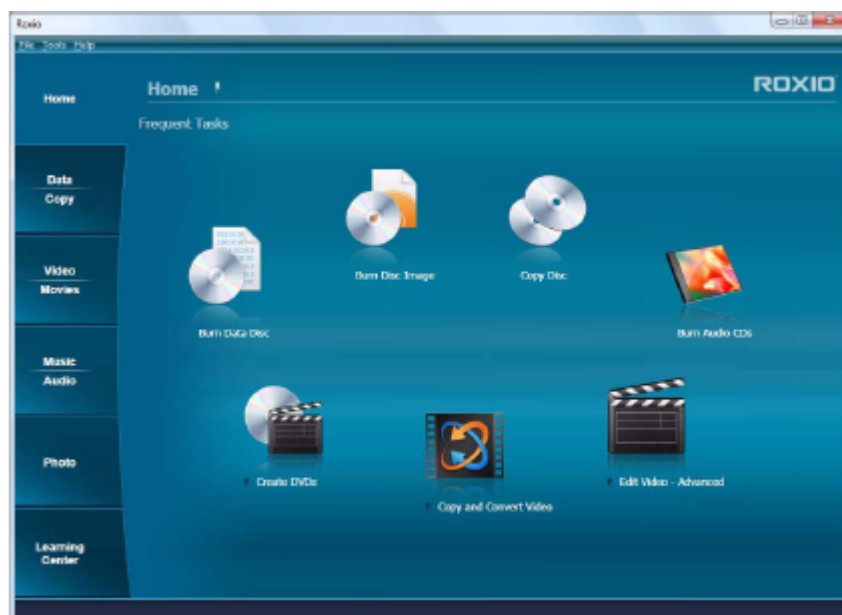
Solution

Remove the DirectXInstallService.

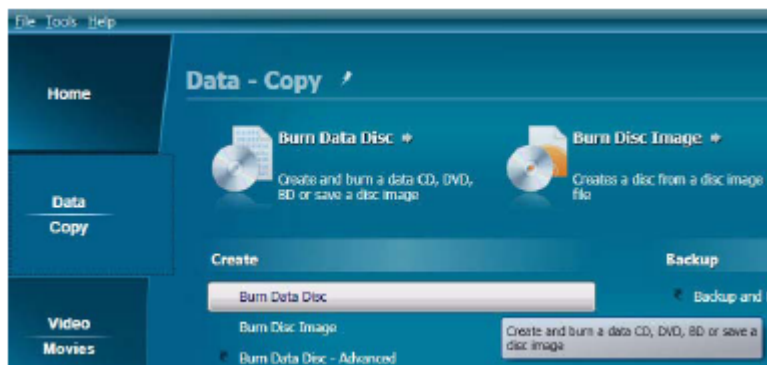
Roxio Creator 10 CD/DVD Burning Process

Follow the below steps to create a disc that contains files copied from your computer:

- Open **Creator** by double-clicking the icon that was placed on your computer desktop during installation. In most cases, the main Creator application window opens with the Home category selected.



- When you are ready, click **Burn Data Disc**.



- To begin a data disc project, insert a blank CD, DVD, or Blu-ray Disc into your computer's disc drive. (The project also allows you to add Roxio Creator User Guide files to an existing data disc, but to keep things simple for this project, use a blank disc.)
- Use the Destination drop-down menu to select the drive holding your blank disc. If your computer only has one disc drive, it will be selected automatically.

Click the **Destination menu** and choose from the list of available drives.

- Now you are going to add files to the project. Click the **Add** button located near the top of the Burn Data Disc project window. Choose Files or Folder from the submenu. A dialog window opens. Use it to select the files or folders you would like to add.

Use the toolbars to open the Quick Scan panel, add files, open saved projects, and delete files from a project.

- Near the Add button on the project window toolbar is the Name Your Disc text box. Enter a name for your disc, so it will be easy to recognize the next time you use it.

While you are using the project toolbars, notice that they include some other useful features:

- The retractable Quick Scan panel makes it easy to select files by category.
- To the right of the Add button is the Projects button that you can use to easily find saved projects.
- Next to that is the Make Bootable button. Use it to create a bootable disc that can be used to start your computer if something should ever go wrong with the Windows operating system.

Before burning your data disc, look along the bottom of the project window. Here you will find several project status indicators. The information presented varies from project to project and is updated when you change discs or destination drives.

Project information is displayed along the bottom of the window. In this case, the indicator shows the project size, the type of disc in the drive, and the available disc space.

- Now you are ready to burn a disc. To begin, click the large green Go button on the bottom right corner of the project window. A progress indicator appears, and your files are copied onto the disc.

The progress indicator shows a burn in progress.

You don't have to wait for this project to finish before starting one of the other projects in Roxio Creator. But you can only have one project of each type running at a time.

When the project is finished, remove your disc and click Finish. If you would like to save this project so the same file set can be easily burned in the future, click the File menu and select Save.

Troubleshooting CD/DVD Burning Process

Situation 1

After you upgrade to Microsoft Windows XP from Microsoft Windows 98, Microsoft Windows 98 Second Edition, Microsoft Windows Millennium Edition (Me) or Microsoft Windows 2000 and you try to run Easy CD Creator or Direct CD, you may receive the following error messages:

'Direct CD 3 A driver is installed that causes stability problems with your system. This driver will be disabled, please contact the driver manufacturer for an update that is compatible with this version of Windows. To run the program, click Continue. For more information, click Details'.

If you click Continue, you may receive the following error message:

'directcd.exe - Application Error The application failed to initialize properly (0xc0000142). Click on Ok to terminate the application'.

If you try to start Easy CD Creator 4, you may receive the following error message:

'Easy CD Creator 4 has a known compatibility issue with this version of Windows. For an update that is compatible with this version of Windows, contact Roxio, Inc. To run the program, click Continue. For more information, click Details'.

If you click Continue, you may receive the following error message:

'Adaptec CD Copier CD Copier cannot find Easy CD Creator. Please reinstall Easy CD Creator. Click on 'OK'.

If you click OK, you may receive the following error message:

'Adaptec CD Copier CD Copier could not locate a supported CD-ROM reader. You will not be able to make disc-to-disc copies. Ok '

To work around this behavior, upgrade to Easy CD Creator 5.1.

1. **Download** the 5.1 update for Easy CD Creator 5.0x.
2. Either double-click 'Setup.exe' or insert the installation CD-ROM and then click **'Install Easy CD Creator'**.
3. Click **'Next'**.
4. Click **'I Accept the terms in the license agreement'** and then click **'Next'**.
5. Click **'Custom'** and then click **'Next'**.
6. Click **'Direct CD'** and then click **'Next'**.
7. Click 'This feature will not be available' and then click **'Next'**.
8. Click **'Install'** and then click **'Finish'**.
9. When you are prompted to restart the computer, click **'No'** (do not restart the computer).
10. Double-click the **'5.1' update**.
11. Click **'Yes'** and then click 'Update'.
12. Click **'Yes'** to restart the computer.

Note: You must upgrade Easy CD Creator 4.0x to Easy CD Creator 5.0 or later if you want to receive support from Roxio.

Situation 2

How to create an image of a disc in Roxio EMC

Roxio EMC Suite enables you to create and burn audio or video CDs and DVDs, convert long play and tapes to Mp3, create disk for images with special effects, merge and edit video clips from camera, and backup or copy a disk. Save Image in Roxio EMC Suite enables you to save an image of the disc on the hard disk. This helps you to create multiple disc by using the image of the disc. This feature is useful when you have only one CD or DVD drive installed on the computer.

To create a disc image:

1. Click **'Start'** and select **'All Programs'**.
2. Select **'Roxio Easy Media Creator 8'** and click **'Home'**.
3. From the left pane, click the **'Copy'** button. (The 'Copy' links appears.)
4. Click the **'Save Image'** link.
5. Insert the disc for which an image is going to be created on the disc drive.
6. Click the **'Browse'** button.
7. Go to the appropriate location.
8. In the 'File name' box, enter appropriate name.

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9. Click the **'Save'** button.
10. From the 'Save Image' section, click the red button.
(The saving process starts and after completion the 'Audio CD' details pane reappears and the CD is ejected from the CD drive.)
11. Click the **'Done'** button. (The project window reappears.)

Situation 3

Prompt to save project does not appear while exiting Roxio EMC.

Roxio EMC Suite enables you to create and burn audio or video CDs and DVDs, convert long play and tapes to Mp3, create disk for images with special effects, merge and edit video clips from camera, and backup or copy a disk. Different types of projects, such as audio, video, or image project can be saved. Saving project enables you to open the saved project later and create or burn a CD. Roxio EMC enables you to save your current project while exiting from the application.

To resolve the problem:

1. Click **'Start'** and select **'All Programs'**.
2. Select **'Roxio Easy Media Creator 8'** and click **'Home'**.
3. From the **'Welcome'** section, click the **'Options'** button.
4. Select the **'Prompt to save projects when exiting application'** check box.
5. Click **'OK'**.

Situation 4

How to: Create an audio CD in Roxio EMC.

To create audio CD tracks:

1. Click **'Start'** and select **'All Programs'**.
2. Select **'Roxio Easy Media Creator 8'** and click **'Home'**.
3. From the left pane, click the **'Audio'** button.
4. Click the **'Audio CD'** link.
5. Click the **'Add Music'** button.
6. Select the appropriate files and click **'Add'**. (The 'Audio CD' details pane reappears with the files added.)
7. Insert a blank CD in the CD drive.
8. From the 'Destination Selection' section, select the appropriate CD drive.
9. From the 'Audio CD' section, click the **red** button.
10. Click the **'Yes'** button.
11. Click the **'Done'** button.

Roxio Creator 10 – Tabs

You can view many tabs on the welcome screen of the Roxio Creator. These tabs have different functionalities and are used for various purposes.

Music-Audio Project Tab:

You will find links to these tasks by selecting the Music-Audio project tab:

- Create an audio CD that you can play anywhere. Select the Burn Audio CDs task.
- Create an MP3 disc that holds hundreds of songs in MP3, WMA, or WAV format. Select the Burn MP3 CDs task.
- Rip audio files from a CD to your computer. Select the Rip task. (To rip songs from more than one drive at a time, select Rip - Advanced.)
- Quickly capture (record) audio from Internet radio and other sources using your computer's sound card. Select the Capture Audio from Sound Card task.
- Record and edit sound clips and audio files to create your own audio mixes. Select the Edit Audio task.
- Create music compilations to play on your home or car stereo, portable music player, DVD player, or on your computer. Use the Beat Matching feature to create mixes your friends will envy. Select the
- Create Music Disc Projects task.
- Transfer audio books from audio CDs or the Internet to an iPod iPhone, or other portable device with just a few clicks. Select the Create Audio books task.
- Create a DVD Music Disc with up to 50 hours of music using tracks from your computer or from any number of audio discs. Choose from professionally designed menu styles or use your own background image, then burn your project to a disc and play on it your computer or set-top player. Select the Create DVD Music Discs task.
- Create digital audio files from your old LPs and tapes in just a few simple steps. You can then clean and enhance your audio files, burn them to an audio CD, or use them in your Creator projects. Select the Digitize LPs and Tapes task.

Photo Project Tab:

You will find links to these tasks by selecting the Photo project tab:

- Create multimedia slideshows and post them online for your friends to see. (English only) Select the Create Photo Shows task.
- Enhance, edit, and share your digital photos. Automatically adjust the exposure, saturation, and sharpness of photos. Fix common problems such as red eye. Select the Edit Photos task.
- Create personalized calendars, greeting cards, and collages using your own photos. You can also create photo slideshows to share with others. Select the Create Projects task.
- Enhance several photos at once using Auto Fix and other photo tools. Rename or convert groups of photos to a different format. Select the Enhance Multiple Photos task.

- Create a dramatic panorama by combining several photos into one. Select the Create Panoramas task.
- E-mail your photos and photo projects to friends and family. Select the Email task.
- Create a high-resolution photo slideshow in just a few clicks, including background audio and Pan and Zoom effects. Select the Create Slideshows task.



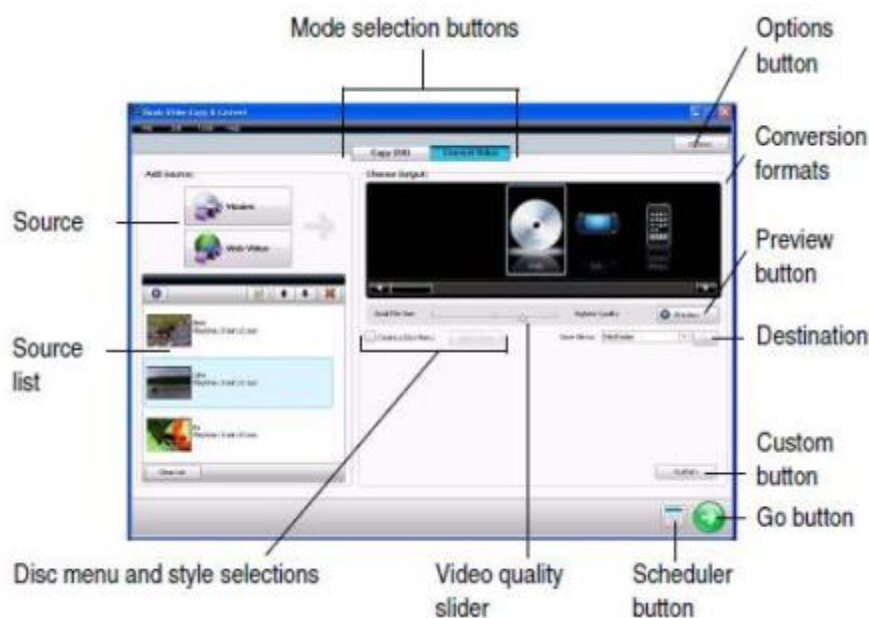
Video-Movie Tab:

You will find links to these tasks by selecting the Video-Movies project tab:

- Convert video to the perfect format for your portable media player, and make copies of personal DVD discs so you can store the originals for safekeeping. Select the Copy and Convert Video task.
- Watch movies using the ultimate digital theater. Creator delivers the absolute highest quality video playback available for your PC and packs all of its powerful features into an extremely easy-to-use and intuitive user-interface. Select the Play Movies task.
- Post videos on YouTube. It doesn't get any easier than this. Select the Share Video task.
- Create professional-looking video productions that combine your home videos and photos with audio, transitions, and special effects. Select the Edit Video—Advanced task.
- Make great looking video productions in a few easy steps. Select the Create DVDs task.

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- Create more elaborate multimedia stories on DVD to share with family and friends. Capture and mix photos and video, include narration or a favorite sound track, create your own professional looking menus, add transitions and animated backgrounds, and burn to DVD, Video CD, or Super VCD. Some versions even let you author Blu-ray movie discs. Select the Create DVDs—Advanced task.
- Copy video directly from a camcorder to a disc. Select the Plug and Burn task.
- Transfer video footage from your AVCHD camera onto a DVD or Blu-ray Disc for safekeeping. Your movies are stored exactly as they were shot, in full high-definition. Select the Archive AVCHD task.



Data-Copy project tab

You will find links to these tasks by selecting the Data-Copy project tab:

- Copy files to a CD, DVD, or Blu-ray Disc. Select the Burn Data Disc task.
- Duplicate an entire disc. Select the Copy Disc task.
- Create encrypted data CDs and DVDs, and archive large projects to multiple discs. Create advanced format and bootable discs, and more.
- Select the Burn Data Disc—Advanced task.
- Back up the files on your computer to a wide range of storage devices including discs, external hard drives, and flash drives. Select the Backup and Restore task.

Importing and organizing media files

You may find links to these tasks on more than one project tab:

- Import photos and video files to your computer from your digital camera, mobile phone, or camcorder. Select the Import Photos or Capture Video tasks.
- View and manage your media files in folders, and to organize them into personalized albums. Find files quickly by browsing or searching, and burn your files to a disc. Select the Browse and Manage Media task.
- Transfer files to your wireless devices, and upload video files to the Internet. Select the Browse and Manage Media task.

Creating labels and disc inserts

You will find links to this task on all of the project tabs:

- Make personalized disc labels and jewel case covers using a simple task assistant. Choose from dozens of professional designs, or create your own. Select the Create Labels task.
- Make personalized disc labels and jewel case covers using our full-featured label-making application. Choose from dozens of professional designs, or create your own. Select the Create Labels—Advanced task.



Check your understanding

1. Name any three applications embedded with Roxio Creator 10?
2. What is the use of Cine Player in Roxio Creator 10?
3. While installing Roxio Creator 10 you get the following error:
'Roxio Easy Media Creator setup was interrupted. Your machine has not been modified. To install this program at a later time, please run the installation again'
What can be the possible cause and how will fix it?
4. Write the steps to create an Audio CD in Roxio EMC?

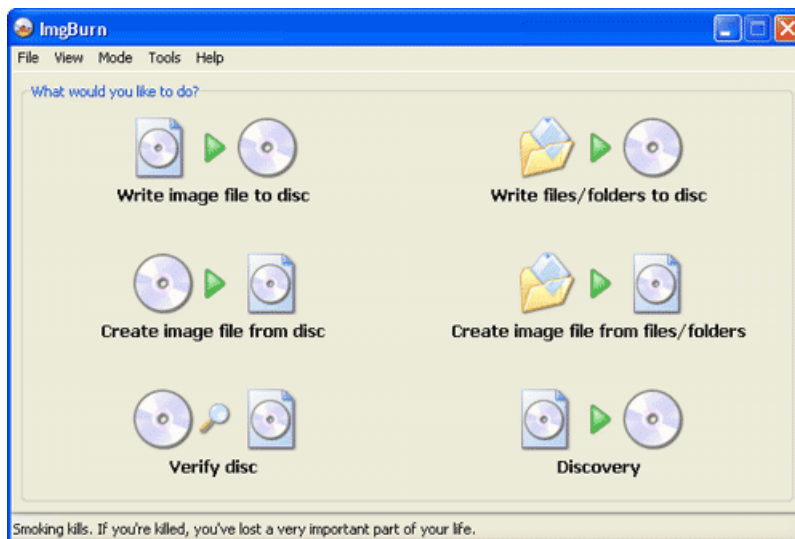
ImgBurn Burning Application

ImgBurn is a lightweight CD / DVD / HD DVD / Blu-ray burning application that everyone should have in their toolkit!

It has several 'Modes', each one for performing a different task:

- **Read** - Read a disc to an image file
- **Build** - Create an image file from files on your computer or network - or you can write the files directly to a disc
- **Write** - Write an image file to a disc
- **Verify** - Check a disc is 100% readable. Optionally, you can also have ImgBurn compare it against a given image file to ensure the actual data is correct

- **Discovery** - Put your drive / media to the test! Used in combination with DVDInfoPro, you can check the quality of the burns your drive is producing.



ImgBurn Installation

Follow the below steps to install ImgBurn application:

1. **Download** ImgBurn from the above link and save it to a location on your hard drive you will be able to locate later.
2. Once the file is finished downloading, double-click on the downloaded file to start the setup.
3. Press **Next** at each of the prompts. During installation it will ask if you want the program to check for updates whenever it runs. If this is something you want it to do, press **Yes**.
4. When it is done press the **Finish** button and ImgBurn will now start.

Writing Image on a Blank CD using ImgBurn software

1. Put a blank CD or DVD into the device you wish to write with.
2. If ImgBurn is not already started, double-click the ImgBurn icon that looks like the following:



When the program opens, select the CD/DVD Recording device that you would like to write to from the Destination drop down box.

3. Click on the **File** menu and then choose the **Browse** option.
4. Navigate to the image that you would like to write and click on it once to highlight it. Then press the **Open** button.
5. When you are satisfied with your settings, click on the image that looks like this:



6. If you get an error stating that ImgBurn is unable to Lock the volume for exclusive access, then click on the **Tools** menu and select the **Settings** option. Then click on the **Write tab** and remove the checkmark next to the checkbox labeled Lock Volume - Exclusive Access. Now proceed to step 6 again.
7. When the program is finished writing the image to your DVD or CD, it will display a message box stating it is finished. Simply click on the **OK** button.
8. **Close** the program if you are finished with it.
9. Eject your CD your DVD.

Uninstalling ImgBurn Application

To uninstall ImgBurn, follow the below steps:

1. Click "**start**" on the taskbar and then click on the "**Control Panel**" icon
2. Please double click the "**Add or Remove Programs**" icon
3. A list of programs installed will be "populated" this may take a bit of time.
4. In this list, select ImgBurn, and click on **Remove**.
5. A wizard should then open, which will guide you through the un-installation.

Troubleshooting ImgBurn Issues

Situation 1

You encounter the below error message while burning DVDs using ImgBurn software:

`I/O error!

Device: [1:0:0] TSST corp DVD + -RW TS-L632D DE03 (E (ATA)

ScsiStatus: 0x02

Interpretation:Check Condition

CDB: 28 00 00 00 BF A9 00 00 01 00

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Interpretation: Read (10) - Sector: 49065

Sense Area: 70 00 04 00 00 00 00 0A 00 00 00 00 3E 02 00 00 00 00 00 00 00 00

Interpretation: Timeout on Logical Unit'

Cause: The speed of burning the DVD is more than 4X.

Solution

Lower down the speed to 4X.

Situation 2

The burning process stops in mid-way and displays the below error message:

'I/O error'

Cause: Two possible causes for the above error message could be:

1. Bad or damaged disk
2. Burning speed is more than 16X

Solution

Try below resolutions to overcome the above error:

1. Check the disk for dust or moisture.
2. Try burning the disk with 16X speed.



Check your understanding

1. ImgBurn supports Blu-ray technology?
True/False
2. Write the steps to write an image on a blank disc using ImgBurn software?
3. The burning process stops in mid-way and displays the below error message:
'I/O error'
What can be the possible cause and how can you fix it?

Digital Camera

This section describes the types, installation, update, and driver installation process of Digital Camera and MP3 player. This covers the following topics:

- Installation of Digital Camera Drivers
- Connecting Digital Camera to Computer

- Transferring photos to the computer

Digital Camera and Its Types

A digital camera (also digicam or camera for short) is a camera that takes video or still photographs, or both, digitally by recording images via an electronic image sensor. Digital cameras can do things film cameras cannot – displaying images on a screen immediately after they are recorded, storing thousands of images on a single small memory device, recording video with sound, and deleting images to free storage space. Some can crop pictures and perform other elementary image editing.

Types of Digital Cameras:

- Bridge cameras
- Digital single lens reflex cameras
- Electronic viewfinder, interchangeable lens cameras
- Line-scan camera systems
- Digital rangefinders

Digital Camera Structure

Back Panel of Digital Camera

The following figure will guide you about the features and tools available at the back panel of the digital camera.

Note: The feature shown can be changed depending upon the model and the brand used by

Back view



- | | |
|-----------------------------------|---|
| 1 Speaker | 8 Self-timer/Burst button |
| 2 Mode dial | 9 3V DC-In/USB/AV out |
| 3 On/Off button | 10 Strap post |
| 4 Zoom Wide Angle/Telephoto lever | 11 Share button |
| 5 Shutter button | 12  , OK |
| 6 Flash button | 13 Delete/Menu/Info/Review buttons |
| 7 Focus (Macro/Infinity) button | |

you.

Front Panel of Digital Camera

The following figure will guide you about the features and tools available at the front panel of the digital camera.

Note: The feature shown can be changed depending upon the model and the brand used by you.

Front view



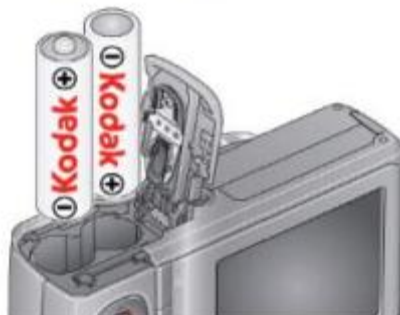
- 1 Flash
- 2 Self-timer/Video/AF Assist light
- 3 Lens/Cover
- 4 Microphone

Batteries in a Digital Camera

The following figure will guide you how to load batteries in a digital camera.

Note: *The feature shown can be changed depending upon the model and the brand used by you.*

Loading the batteries



Power ON the Camera

Every digital camera needs a Power On button to start. In most cases, the button is available on the top of the digital camera.

Turning on the camera



Memory Card Slot

Different digital cameras support different memory cards, such as, SD, SDHC, CF, and xD. A digital camera contains a memory card slot that it supports. The following figure will guide you how to load a memory card in a digital camera.

- ① Turn off the camera.
- ② Insert or remove the optional card.
- ③ Turn on the camera.



Installing Digital Camera Drivers

Perform the following steps to install the drivers of a digital camera:

1. **Close** all the applications including the Antivirus and Firewall applications
2. **Insert** the driver Disc in the optical drive which you got with the camera or you can download the drivers from the camera manufacture's website.
3. **Run** the Setup file to install the drivers.
4. **Follow** the wizard instruction to complete the process.
5. **Restart** the computer after installing the drivers.

Un-Installation of Drivers

Perform the following steps to remove the digital camera drivers from the computer:

1. Click **Start** and then click **Control Panel**
2. Double click **Add/Remove Program**
3. **Locate** and **select** the Camera drivers and click **Remove** button
4. **Restart** the Computer after removing the drivers

Transferring Pictures to the Computer

Perform the following steps to transfer the pictures to the computer:

1. Ensure your computer is **ON**
2. Turn **OFF** the digital camera
3. Connect one end of the USB cable to the computer and other end to the camera
4. Turn **ON** the camera
5. Camera Software will help you to transfer the pictures

Transferring pictures with the USB cable



- ① Turn off the camera.
- ② Connect the KODAK USB Cable, Model U-8.
- ③ Turn on the camera. KODAK EASYSHARE Software opens on your computer and prompts you through the transfer process.

Printing Pictures

Perform the following steps to print the pictures:

Method 1

- Transfer the pictures to your computer and then print the pictures using the printer.

Method 2

- Some cameras can be directly connected to All-in-One Printers and you can print the pictures.

Updating Camera Drivers

Perform the following steps to update the camera drivers:

Method 1

- Open digital camera software and click update driver option.

Method 2

1. Visit the camera manufacturer website download the latest drivers
2. **Un-install** the old or existing drivers using **Add/Remove Program**
3. **Restart** the Computer
4. **Install** the latest drivers

Troubleshooting Digital Cameras

Situation 1

You install camera driver in your system and when you use the camera, you encounter the below error message:

'USB Error'

Furthermore, the driver does not get installed from the CD.

Solution

Open the Scanner and Camera Installation window, connect the camera, and turn it on.

Situation 2

The camera driver does not install properly and viewing the system information, you encounter the below error message:

'Cannot access windows management instrumentation software. Windows management files may be moved or missing'

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Solution

Follow the below steps to overcome the above error message:

1. On the Desktop, right-click **My Computer**, and then click **Manage**.
2. Under "Services and Applications", click **Services**, and then stop the Windows Management Instrumentation service.
3. **Delete** all of the files that are in the %SystemRoot%\System32\WbemRepository folder.
4. **Restart** the computer. The files are recreated when the computer restarts.

Situation 3

When you power on your camera and try to view or capture any new pictures, you encounter any of the below error message:

'Memory card requires formatting'

'Memory card could not be recognized'

'Internal memory requires formatting'

'Card is not formatted'

'Card error'

'A Media Card has been inserted that contains errors'

'Card has wrong format'

'Internal memory could not be read'

'Memory card could not be read'

Cause: Memory card is corrupted

Solution

Format the memory card in the camera.

Situation 4

You try to install a camera driver on your Windows Vista system and encounter the below error message:

'**Error code 10**'

Cause: Problem with Windows\system32\drivers\libusb0.sys.

Solution

Uninstall libusb0.sys.

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Situation 5

You plug in the digital camera in the USB and encounter the below error message:

'One of the filter drivers installed for this device is invalid.'

Cause: Incorrect filter driver entries.

Solution

Use registry editor to delete the incorrect entries.



Check your understanding

1. Name the types of Digital Cameras?
2. Name any three brands who manufacture Digital Camera?
3. Name the different types of memory cards?
4. Digital Camera can transfer the images to the computer using Bluetooth technology?
True/False
5. When you power on your camera and try to view or capture any new pictures, you encounter any of the below error message:
 - 'Memory card requires formatting'
 - 'Memory card could not be recognized'
 - 'Internal memory requires formatting'
 - 'Card is not formatted'
 - 'Card error'
 - 'A Media Card has been inserted that contains errors'
 - 'Card has wrong format'
 - 'Internal memory could not be read'
 - 'Memory card could not be read'
 What can be the possible cause and how can you fix this issue?
6. What does the "error code 10" means?
7. You plug in the digital camera in the USB and encounter the below error message:
'One of the filter drivers installed for this device is invalid.'
What can be the possible cause and how can you fix this issue?

MP3 Players

A digital audio player, or DAP, usually referred to as an MP3 player, is a consumer electronic device that has the primary function of storing, organizing and playing audio files. Some DAPs are also referred to as portable media players as they have image-viewing and/or video-playing support.

Digital audio players are generally categorized by storage media:

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Flash-based Players: These are non-mechanical solid state devices that hold digital audio files on internal flash memory or removable flash media called memory cards. Due to technological advancements in flash memory, these originally low-storage devices are now available commercially ranging up to 64 GB. Because they are solid state and do not have moving parts they require less battery power and may be more resilient to hazards such as dropping or fragmentation than hard disk-based players. Basic MP3 player functions are commonly integrated into USB flash drives.

Hard drive-based Players or Digital Jukeboxes: Devices that read digital audio files from a hard disk drive (HDD). These players have higher capacities currently ranging up to 250 GB. At typical encoding rates, this means that tens of thousands of songs can be stored on one player.

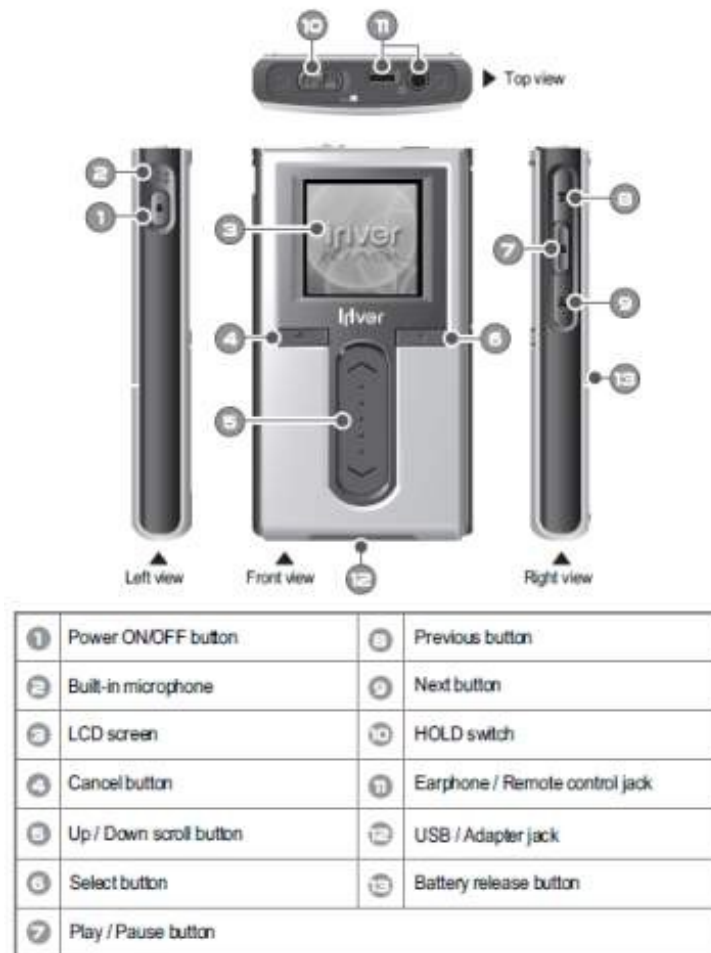
MP3 CD Players: Portable CD players that can decode and play MP3 audio files stored on CDs.

Networked audio players: Players that connect via (WiFi) network to receive and play audio.

MP3 Player Control Panel

The following figure will guide about the control panel features:

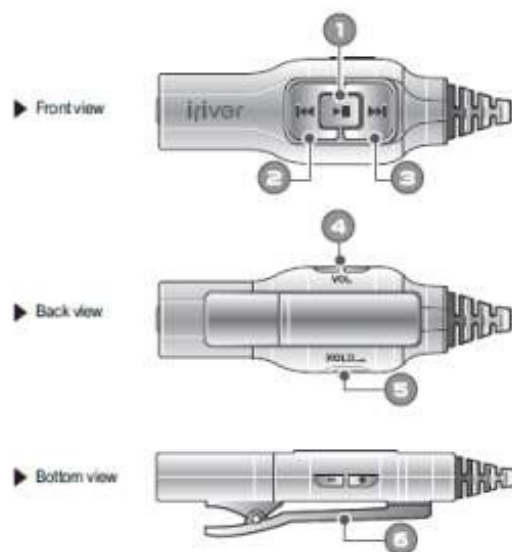
Note: *The feature shown can be changed depending upon the model and the brand used by you.*



Different Views of MP3 Player

The following figure will guide you about the controls available on the different sides of the MP3 player:

Note: The feature shown can be changed depending upon the model and the brand used by you.



①	Power ON, OFF / Play / Pause button		
②	Previous button	⑤	HOLD switch
③	Next button	⑥	Clip
④	Volume control button		

Installing MP3 Player Drivers

Perform the following steps to install the drivers of a MP3 Player:

1. **Close** all the applications including the Antivirus and Firewall applications
2. **Insert** the driver Disc in the optical drive which you got with the MP3 Player or you can download the drivers from the MP3 manufacture's website.
3. **Run** the Setup file to install the drivers
4. Follow the wizard instruction to complete the process.
5. **Restart** the computer after installing the drivers

Un-Installation of Drivers

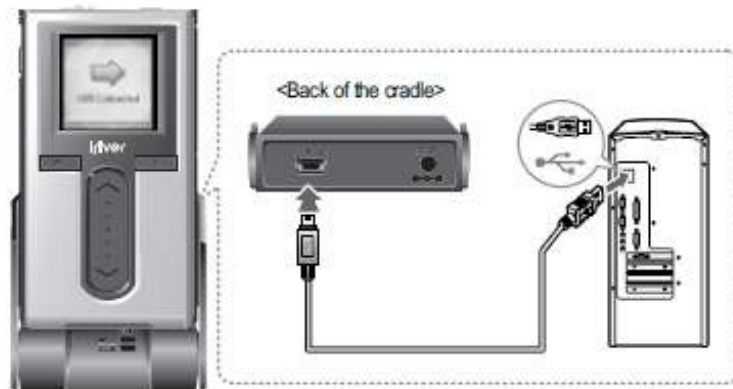
Perform the following steps to remove the MP3 drivers from the computer:

1. Click **Start** and then click **Control Panel**
2. Double click **Add/Remove Program**
3. **Locate** and **select** the MP3drivers and click **Remove** button
4. **Restart** the Computer after removing the drivers

Connecting MP3 Player to a Computer

Perform the following steps to connect the MP3 player to a computer:

1. Ensure you computer is turned **ON**
2. Turn **OFF** the MP3 Player
3. Connect the one end of USB cable to the computer and other end to the MP3 Player and then Power **ON** the MP3 Player
4. MP3 software will help you to transfer the songs and sync with the computer



Updating MP3 Player Drivers

Perform the following steps to update the MP3 Player drivers:

Method 1

- Open MP3 Player software and click update driver option.

Method 2

1. Visit the MP3 Player manufacturer website download the latest drivers
2. Un-install the old or existing drivers using **Add/Remove Program**
3. **Restart** the Computer

4. **Install** the latest drivers

MP3 Player – Troubleshooting (General Steps)

Scan for viruses and spyware

- Scan your PC using the free virus and spyware scans available.
- Virus scans check for virus vulnerability and other security threats.
- Spyware scans look for hidden spyware infections and computer corruption.

Refer to manufacturer's provided setup instructions prior to installation

- Install software disc first, then plug in your device and follow instructions.

Keep software and firmware up-to-date

- Both software and firmware relate to programming. Manufacturers frequently have updates for your MP3 player. Make sure to check their Web site and download any firmware or software to maintain the best performance of your MP3 player.

How to troubleshoot your iPod:

If you cannot see the iPod icon in iTunes, try plugging your device into a different USB port.

Make sure you have the latest versions of iPod and iTunes software (available on the Web at: www.apple.com/iPod/download).

If your Apple iPod is locked up or won't turn on, you might need to reset your device. Go to www.apple.com/support/ipod for specific instructions on resetting your iPod as well as other helpful troubleshooting tips.

For brand-specific help, check out the troubleshooting sections at the Web sites below:

- Apple - www.apple.com/support/ipod
- Samsung - www.samsung.com
- SanDisk - www.sandisk.com
- Creative Labs - www.creativelabs.com
- Sony - www.sony.com
- Insignia - www.insignia-products.com
- Zune - www.zune.net/en-US/support/default.htm

Troubleshooting Live Scenarios MP3 Players

Situation 1

Your 8 GB MP3 player does not turn on. When you turn it on, the only thing that you could see is an hour glass. Moreover, when you connect the player to your system, it does not recognize the device.

Cause: The MP3 is logically damaged.

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Solution

Reset the MP3 player to its factory settings.

Situation 2

You connect your MP3 to your system and a corrupt file gets automatically loaded on your player. This file does not get deleted and does not allow you to store any new files in the MP3 player.

Cause: Virus attack.

Solution

Reset the MP3 player to its factory settings.

Situation 3

When you connect to your MP3 player to your system, you encounter the below error message:

'error occurred'

Cause: The MP3 is logically damaged.

Solution

Reset the MP3 player to its factory settings.



Check your understanding

1. Name the different types of Digital Audio Players categorized on the basis of storage media?
2. Write the steps to connect MP3 Player to the computer and transfer the songs?
3. When you connect to your MP3 player to your system, you encounter the below error message:
'error occurred'
What can be the possible cause and how can you fix it?
4. Your 4 GB MP3 player does not turn on. What can be the possible cause and how can you fix it?

Day 4: Managing Local and Network Printers

Module Objectives:

By the end of this module you will understand:

- Discuss printer terminology
- Explain the printing process for local and network printers.
- Connect to local and network print devices
 - Install a local printer.
 - Configure and manage local printing
 - Install a network printer (wired & wireless)
 - Connect to and manage printing to a network-based printer
 - Manage print jobs.
- Print Permissions
 - Identify basic and advanced print permissions.
 - Identify default print permission assignments.
 - Calculate effective print permissions.
- Sharing a Printer
 - Share a printer.
 - Connect to a shared printer.
- Troubleshoot printers
 - Troubleshooting Print Driver issues
 - Troubleshooting Printers and Printing Issues

Basic Printer Terminology

Printer: The physical device that performs the printing. This device is usually a printer, but it can also be a fax device or a plotter.

Logical Printer: The software configuration that is created in Windows XP and is represented by an icon in the Printers And Faxes window. It controls the printer's configuration and the way in which Windows sends documents to the printer.

Printer Driver: The software driver that contains printer-specific information.

Print job: A document that Windows has prepared for printing.

Graphical Device Interface: A Windows component that creates print jobs by interpreting document information from an application and combining it with printer information that is obtained from the printer driver. This process is called rendering.

Print Server: A computer or other network device that has a printer physically attached to it and shares that printer with the network.

Print Spooling: The process of saving a print job to the hard disk before sending it to the printer.

Spool Directory: The folder to which print documents are spooled. This is %System_root%\System32\Spool\Printers by default.

Print Spooler: The Windows operating system service that controls the print spooling process. The file Winspool.drv is the client-side spooler, and Spoolsv.exe is the server-side spooler.

Print Router: When a user prints to a network printer, the print router locates a remote print provider that can service the print job's protocol. The file Spoolss.exe contains the print router.

Remote Print Provider: A service that can forward jobs to remote print servers. The remote print provider exists on the client-side of the printing process ("remote" refers to the physical location of the printer).

Local Print Provider: A Windows service that receives print jobs, spools them to the hard disk, and keeps track of job information while the job is in the print queue.

Print Processor: Software that makes any necessary modifications to the print job, and then calls on the GDI to further render the job, if necessary. Windows XP includes Winprint as its only print processor. Winprint is included in the Localspl. dll file.

Printer Pool: A single logical printer configured for multiple printers. Printer pools allow you to divide the printing workload among several printers of the same manufacturer and model.

Separator Page Processor: Software that adds separator pages between print jobs as required.

Port Monitor: Software that controls communication with the ports to which printers are attached.

Local Printing Process

The local printing process happens as follows:

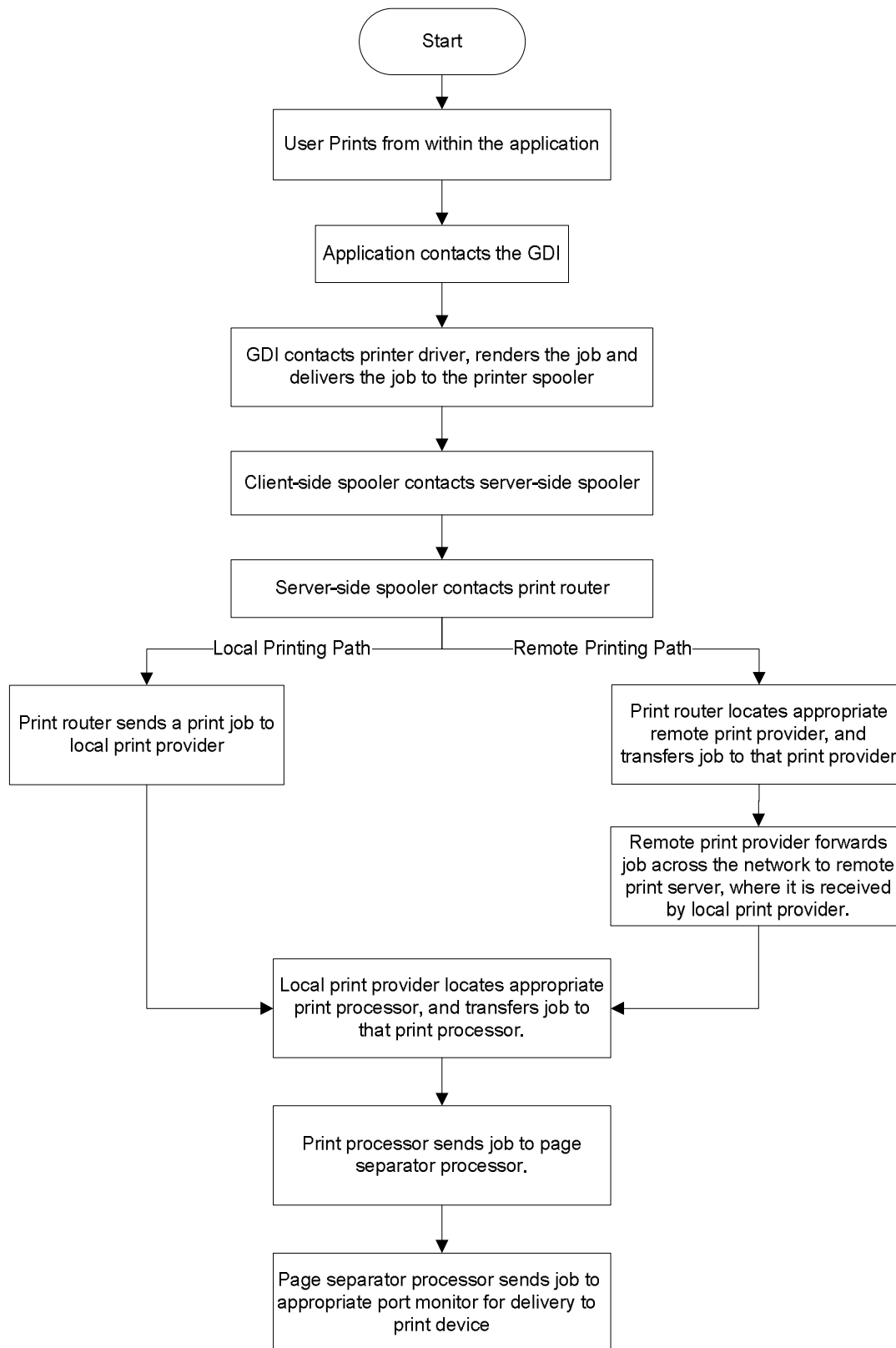
1. The user prints from within an application.
2. The application contacts the GDI.
3. The GDI contacts the print driver for printer-specific information, renders the job, and delivers the job to the print spooler.
4. The client-side of the spooler contacts the server-side spooler.
5. The server-side spooler contacts the print router.
6. The print router sends the print job to the local print provider.
7. The local print provider polls the print processors to find one that can process the type of data that is contained in the print job and then sends the job to the appropriate print processor.
8. The print processor contacts the GDI to further render the job if required to make it print properly.
9. The print processor sends the job to the page separator processor, where a separator page is added if required.
10. The print job is then sent to the appropriate port monitor, which ultimately delivers the job to the printer.

Remote Printing Process

The remote printing process is same as the local printing process, except for the need to forward the print job across the network to the print server in the middle of the process. The following steps outline the remote printing process:

1. The user prints from within an application.
2. The application contacts the GDI.
3. The GDI contacts the print driver for printer-specific information, renders the job, and delivers the job to the print spooler.
4. The client-side of the spooler contacts the server-side spooler.
5. The server-side spooler contacts the print router.
6. The print router locates a remote print provider that can forward the job to the appropriate print server and transfers the job to the remote print provider.
7. The remote print provider forwards the job across the network to the remote print server, where the local print provider receives it.
8. The local print provider polls the print processors to find one that can process the type of data that is contained in the print job and sends the job to the appropriate print processor.

9. The print processor contacts the GDI to further render the job if required to make it print properly.
10. The print processor sends the job to the page separator processor, in which a separator page is added if required.
11. The job is then sent to the appropriate port monitor, which ultimately delivers the job to the printer.



Installing Local Printer

The following steps will guide you how to configure a local printer:

1. From the **Start** menu, select **Printers and Faxes**.
2. In the Printers And Faxes window, double-click the **Add** Printer icon to start the Add Printer Wizard. On the Welcome page of the wizard, click **Next**.
3. On the Local Or Network Printer page, select the Local Printer Attached To This Computer option. You can select the Automatically Detect And Install My Plug And Play Printer option if you have a Plug and Play printer that was not automatically detected when it was connected to the computer. Click **Next** to continue. If Windows detects a printer, Windows installs the printer automatically. If not, you need to select a printer manually.
4. On the Select A Printer Port page select one of the following ports that are available by default, and then click **Next**:
 - LPT1-3: standard printer (parallel) ports.
 - COM1-4: standard serial ports.
 - FILE: It enables to print to a file on the hard disk rather than directly to a printer. The file can then be forwarded to a printer when necessary.
5. On the Install Printer Software page, select the printer's manufacturer and model. If your printer is not available in the list, or if you have a driver that is newer than the one that shipped with Windows, select the Have Disk option and provide Windows with the path to the printer driver. When you are finished, click **Next**.
6. On the Name Your Printer page, choose a name that is descriptive of the type of printer. You should limit the name to 31 characters or fewer to maintain compatibility with older applications and previous versions of operating systems. Also, select whether or not you want this printer to be the default printer that is used, and then click **Next**.
7. On the Printer Sharing page shown in below figure, indicate whether you want this printer to be available to users on the network by sharing it or to be available only to users who use this computer. If you choose to share the printer, you are required to enter a share name, and then you will be given an opportunity to configure a location and description for the printer. Click **Next** button;
8. On the Print Test Page select **Yes** to print a test page, which is a single page of text and images that are designed to verify that the printer is functioning correctly and that the appropriate printer driver has been selected. Click **Next**.
9. On the Add Printer Wizard Completion page, verify that you have selected the appropriate settings and then click **Finish** to install the printer.

Installing Network Printers

The following steps will guide you how to configure a local printer:

1. From the **Start** menu, select **Printers and Faxes**.

2. In the Printers and Faxes window, double-click the Add Printer icon to start the **Add Printer Wizard**. On the Welcome page of the wizard, click **Next**.
3. On the Local Or Network Printer page, select the "A network Printer, or a printer attached to another computer" option. Click **Next** to continue.
4. Select the first option, "Find a printer in the directory" and click **next**.
5. On the next pop up window, click on "**Find Now**".
6. This would display all the printers connected in a network. Please select the printer, you wish to install and click on **OK**.
7. Select "**Yes**" if you wish to make this printer a "**default printer**".
8. Click on **Finish**, to complete the installation process.

Configuring Printers

To configure Local Printer, you need to select options from the shortcut menu available for the installed printer:



- **Set as Default Printer:** Specifies this printer as the default printer for use in all programs. When a user prints and does not specify a printer, this is the printer that Windows uses. You can specify only one printer as the default at a given time.
- **Printing Preferences:** Enables the configuration of the default page orientation, page order, pages per sheet, and so on.
- **Pause Printing:** Stops print documents from being sent to the printer. When the printer is paused, there is a check mark next to this option in the action menu. To restart the printer, select the Pause Printing option again to clear the check mark. Pausing printing is useful when a number of documents are waiting to be printed and you need to make adjustments to or fix a problem with the printer configuration.

- **Sharing:** Allows the management of shared printer resources.
- **Use Printer Offline/Online:** Allows the printer to be used offline if the computer is not connected to the printer or the network, or if the user wants to hold all jobs locally for a period of time. When you bring the printer back online, all documents waiting in the local queue are printed.
- **Properties:** Provides access to the printer's Properties dialog box, from which you can configure a number of options, including many of the options that you can also access from a printer's shortcut menu. The options that are available in the Properties dialog box are covered in the next few sections.

Printer Properties

General Tab

The General Tab of printer's properties window allows performing the following tasks:

- Change the name of the printer
- Configure the printer's location
- Enter a comment about the printer that helps to identify its use
- View the printer model and feature settings
- Configure printing preferences, such as portrait or landscape, and page order (front-to-back or back-to-front)
- Print a test page to verify printer functionality.

Ports Tab

- Reconfigure the port to which the printer is connected
- configure bidirectional support (if available) and use a printer pool

Printer Pooling: A printer pool allows to associate two or more printers to a single logical printer. When documents enter the queue of a printer pool, Windows assigns the document to the first available printer, automatically distributing the printing load to all printers. This feature allows combining several lower-speed printers into a single, higher-speed logical printer.

All printers in a printer pool should be the same make and model. While creating a printer pool, it is recommended to use printers that support the same print driver, but advanced print functionality supported by the different printers is lost when they are used in a pool. If the printers do not support the same driver, the output on the printers that does not support the installed driver might be problematic.

To establish a printer pool, follow these steps:

1. Identify the printers that will be part of the printer pool and the ports that they are attached to.

2. Use the Add Printer Wizard to create a logical printer for one of the printers. The wizard permits you to assign only a single port to the printer. Assign a port that has one of the printers attached to it.
3. After creating the first logical printer, open the Properties dialog box for the logical printer and select the Ports tab.
4. Enable printer pooling.
5. Select each additional port that contains a printer that will be part of the pool.

Advanced- Tab

The Advanced tab of Printer properties has following options to configure:

- **Availability:** Allows to schedule alternate printing times and limit the hours that a printer is available
- **Priority:** The printer Priority option allows you to define a priority for this printer, ranging from 1 to 99 (the higher the number, the higher the printer's priority).
- **Spooling:** Select the Spool Print Documents So The Program Finishes Printing Faster to enable printer spooling. Select Print Directly To The Printer to disable spooling.
- **Hold Mismatched Documents:** A mismatched document is a print document that requires a different type of paper than that which is currently installed in the printer. Selecting the Hold Mismatched Documents option causes the spooler to check the current printer setup against the document setup before sending the document to the printer.
- **Print Spooled Documents First:** When this option is disabled, the spooler determines which document to print next based only on the document's priority and the time the document arrived in the queue.
- **Keep Printed Documents:** Configures the spooler to not delete documents after they have been printed.
- **Enable Advanced Printing:** Features Activates EMF spooling and enables printer features such as Page Order, Pages Per Sheet, and other printer-specific features.
- **Printing Defaults:** Configures default document settings for all users of the printer.
- **Print Processor:** Configures the print processor and default data type. Recall that the print processor is responsible for processing print documents into a format that is suitable to be sent to the printer, and Windows XP contains only the Winprint processor by default.
- **Separator Page:** Separates one print job from the next.

Device Settings Tab

The Device Settings tab of a printer's Properties dialog box, allows configuring settings that are specific to the printer. Options available in this tab vary depending on the type of printer that you are using, but you should be aware of one common device setting: the Form To Tray Assignment setting. If the printer has multiple paper trays, you might need to assign different sizes of paper or forms to the different trays. By default, Windows assumes that all paper trays have letter-sized paper. If you need to change this default behavior, you must

select the tray and then define the type of paper (such as legal size) that is in it. When users print, they can select the forms they want to use, and the printer knows which forms are in which paper tray.

Managing Print Jobs

A print job simply refers to a document that is waiting in a printer queue to be printed. You can view the print jobs that are in a queue by double-clicking the printer icon in the Printers and Faxes window. In the queue window, you can manage documents in one of two ways:

- Right-click the document and manage the document by using the commands on the shortcut menu.
- Select a document and use the commands on the Document menu.
- **Pause:** Stops printing of the document until you resume or restart the printing
- **Resume:** Causes the document to start printing from the point at which it was paused
- **Restart:** Causes the document to start printing from the beginning
- **Cancel:** Deletes the document from the print queue
- **Properties:** Provides access to the document's Properties dialog box. You can use the settings on the General tab to perform the following actions:
 - View basic properties of the print document.
 - Change the user name to be notified when the document prints. By default, this will be the user who printed the document.
 - Reset the document's priority within the queue. This process moves the document up or down the printing order in the queue. The user needs a minimum of Manage Documents permission for this option to be implemented.
 - Change the time that the document is scheduled to print. If the printer itself has time restrictions that are set to limit availability, the documents automatically have the same time restrictions.

Print Permissions

Although you can assign print permissions to printers in Windows XP Professional, Windows XP Home Edition does not support print permissions. In Windows XP Professional, there is only one set of permissions that applies to printers, and these permissions are in effect when a printer is accessed both locally and remotely. This is unlike file system permissions, where there are potentially two types of permissions at work: share permissions and NTFS permissions.

Basic Print Permissions

For each user account or group, you can assign the following three basic print permissions:

- **Print** Allows users or groups to connect to a printer, print documents, and manage their own documents in the print queue. Managing a document includes the ability to pause, resume, restart, and cancel the document.
- **Manage Documents** Allows users or groups to connect to the printer, manage all documents in the print queue, and control print settings for all documents. This permission does not include the ability to print documents.
- **Manage Printers** Allows users or groups to perform all the tasks included in the **Print** and **Manage Documents** permissions. In addition, the user can pause and resume the printer, take the printer offline, share the printer, change printer properties, delete a printer, and change print permissions.

Advanced Print Permissions

You can provide most printer security requirements by using basic permissions, but sometimes you might need to use advanced permissions. Advanced print permissions include **Read Permissions**, **Change Permissions**, and **Take Ownership**. To add advanced permission assignments, follow these steps:

1. On the **Security tab** of the printer's Properties dialog box, click **Advanced**.
2. In the Advanced Security Settings dialog box click **Add**.
3. In the Select Users Or Groups dialog box, select the user accounts or groups that you want to assign permissions to, and then click **OK**. Use the **Advanced** button to search for user accounts and groups if you do not know the exact names.
4. In the Permission Entry dialog box modify the permissions as necessary and click **OK**.
5. In the Advanced Security Settings dialog box, click **OK** to return to the **Security tab**, and then click **OK** again.

Default Print Permissions Assignments

After you install a new printer, Windows automatically creates the following default permission assignments:

- The **Everyone** group has **Print** permission to the printer.
- The **CREATOR OWNER** user (which represents the user who installed the printer) has the **Manage Documents** permission, which permits users to manage their own documents only.
- The local groups' **Administrators** and **Power Users** have the **Print**, **Manage Documents**, and **Manage Printers** permissions—giving them full control to use and manage the printer and all print documents that are in the print queue.

If you want to limit access to the printer, you must remove the default permission assignment to the **Everyone** group and then assign permissions to the appropriate users and groups.

Sharing a Printer

On a network, many users might need to access a printer. In a business environment, users might require access to a number of different printers that have special features such as color or high-speed capabilities. In a home or small office environment, there might be only a single printer available for all users to share. Most businesses need to control who has access to certain printers, whereas in the home or small office all users normally have unlimited access to the printer. Both Windows XP Professional and Windows XP Home Edition allow you to share a printer.

To make a local printer available to network users, you must share the printer. There are two ways to share a printer:

- During printer installation
- By using the Sharing tab of the printer's Properties dialog box after you have installed the printer

During the installation of a local printer, Windows gives you the option to share the printer on the Printer Sharing page of the Add Printer Wizard.

Connecting to Shared Printers: There are different methods to access shared printers in Windows XP. Remember that printer access is controlled through the assignment of permissions. If a user does not have at least the Print permission to a printer, that user cannot establish a connection to the printer. The following details will brief you about each option:

- **Connecting by Using the Add Printer Wizard:** To connect to a shared printer by running the Add Printer Wizard. On the Local Or Network Printer page, choose A Network Printer Or A Printer Attached To Another Computer. The Add Printer Wizard asks you to specify the name of the shared printer that you want to connect to. If you do not know the name of the printer, you can use the following search options:
 - If the computer is a member of a Windows 2000 Server or Windows Server 2003 domain, you are given the option to Find a Printer in the Directory. This option enables you to search Active Directory service for a printer. After you locate the printer that you want to connect to, select it and click OK to continue with the installation.
 - Choosing the Connect To This Printer option gives you the opportunity to enter the path of the printer or to click Next to browse My Network Places in search of the printer.
 - Choosing the Connect to A Printer on the Internet or on Your Intranet option allows you to specify the printer's URL.
- **Connecting by Browsing My Network Places:** If you know the name of the computer that shares the printer, you can browse My Network Places to connect to the printer. After you locate the printer, you can right-click the printer and choose

Connect, or you can drag and drop the printer to the Printers And Faxes folder on your computer.

- **Connecting by Using the Run Dialog Box:** If you know the location to the printer (or at least the name of the print server that the printer is attached to), you can enter the path in the Run dialog box (available by selecting Run from the Start menu). Entering the full Universal Naming Convention (UNC) path of the printer (for example, \\Computer1\\HPLaser6P) automatically connects you to the printer. Entering just the name of the server (for example, \\Computer1) displays all the resources on that computer. You can then right-click the printer and select the Connect option, just as if you had browsed for it in My Network Places.
- **Connecting from Within Applications:** When you are working in an application and it is time to print, you usually have the option to choose any printer that you currently have installed. Some applications also permit you to install a new printer from within the application's Print dialog box. Clicking the Find Printer button opens a dialog box that allows you to locate and install an available printer.

Wireless Network Standards

802.11 is the collection of standards setup for wireless networking. You are probably familiar with the three popular standards: 802.11a, 802.11b, and 802.11g. Each standard uses a frequency to connect to the network and has a defined upper limit for data transfer speeds. The following details will brief you about each wireless standard:

- **Wireless-B (802.11b):** Operates on the 2.4GHz frequency band and can transmit data at speeds of up to 11Mbps within a range of up to 100-150 feet. Wireless range can be affected by reflective or signal-blocking obstacles, such as mirrors, walls, devices and location, whether indoors or outdoors.
- **Wireless-A (802.11a):** Operates at the frequency of 5GHz, which is less crowded than 2.4GHz where telephones and microwaves may cause interference. Although the speed is up to 54Mbps, the range is only up to 75 feet. Wireless-A is incompatible with both Wireless-B and G because it operates at a different frequency.
- **Wireless-A+G (802.11a + g):** Linksys also offers dual-band products, in which routers and adapters are compatible with both 2.4GHz and 5GHz frequencies. Both radio bands work simultaneously, blanketing your wireless zone and bandwidth.
- **Wireless-G (802.11g):** Features the same benefits as Wireless-B, but offers 5X the speed at up to 54Mbps. Wireless-G currently offers the best combination of performance and value. You can mix Wireless-B with Wireless-G equipment, but you will lose the higher performance speeds of Wireless-G.

Wireless LANs primarily use CSMA/CA: Carrier Sense Multiple Access/Collision Avoidance. It has a "listen before talk" method of minimizing collisions on the wireless network. This results in less need for retransmitting data. Wireless standards operate within a wireless topology.

Configure and Setup a Wireless Printer

Win XP

The following steps will guide you how to configure wireless printer in Windows XP:

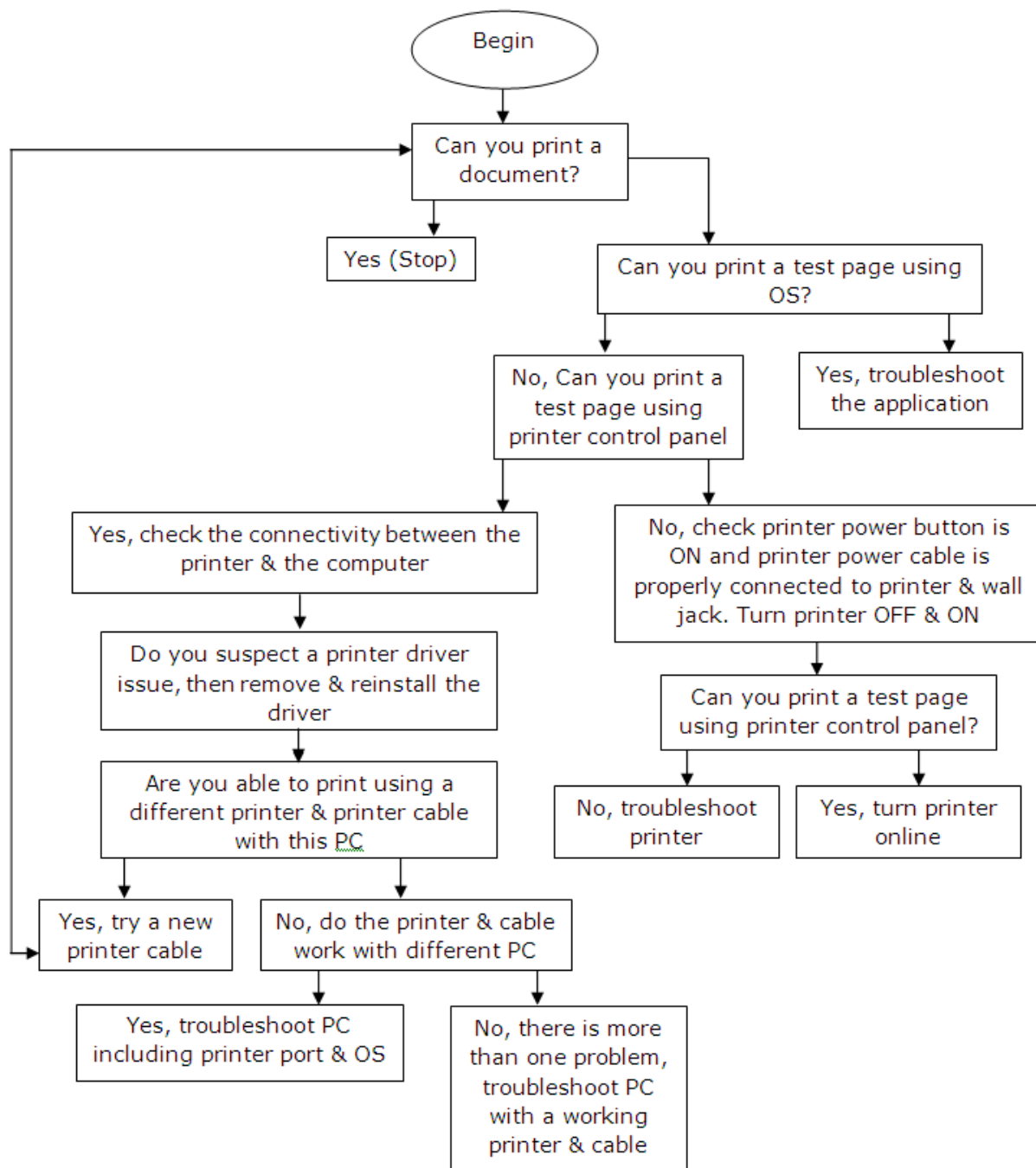
1. Turn on your wireless router and connect your wireless printer via wireless or using cable.
2. If you use MAC address for your network then take the print of printer configuration settings which is on printer test page.
3. Wait for 2-3 minutes for your network to find your printer.
4. Print a printer configuration page and note the IP address of the printer.
5. Install the printer drivers and run the network wizard
6. Follow the wizard instructions to complete the printer configuration (use the printer IP address or MAC address if required)

Win Vista

The following steps will guide you how to configure wireless printer in Windows Vista.

1. **Download** the Printer drivers from the manufacture's website
2. Click **Start** and then click **Control Panel**
3. Double click **Printers** icon
4. Click **Add a Printer**
5. Click **Hardware and Sound**
6. Click **Add a Network Wireless** or Bluetooth printer
7. **Follow** the wizard instructions to complete the installation process.

General Printer Troubleshooting



Real-time Printer Issues

Below are some real-time printer problems that a common computer user encounters:

How to uninstall HP printer using installation CD

To do this, follow the steps below:

1. Put CD in CD drive.
2. **Explore** the CD.
3. Go to a folder of **Util**.
4. In Util there is a folder CCC. In CCC folder you will find 4 uninstallers.
uninstaller_L1.bat
uninstaller_L2.bat
uninstaller_L3.bat
uninstaller_L4.bat
5. Run all of them in the same order, after every step reboot the computer.
6. After that Open registry through regedit. Take back-up of it.
7. Browse to - My Computer\HKEY_LOCAL_MACHINE\SYSTEM\Current Control Set\Enum\USB,
My Computer\HKEY_LOCAL_MACHINE\SYSTEM\Control Set001\Enum\USB, and other Control Sets as well.
8. Search of any entry by the name of Vid_0000&Pid_0000.
9. If this entry is found delete it.
10. Search for any other entry which starts with Vid_03f0&Pid_xxxx (Vid Stands for Vendor ID and Pid stand for Product ID, and every HP USB product has a Vid starting with Vid_03f0.)
11. If any Vid_03f0&Pid_xxxx is found click on (+) sign next to it and inside it there will be some folders. Click on each folder and check for the entry (DeviceDesc) in right pane.
12. If any entry(s) is/are found corresponding to the AIO which is being uninstalled then delete the entire Vid_03f0&Pidxxxx entry.
13. **Exit** registry and **reboot** computer.
14. **Reinstall** the software with the CD in normal mode.

Unable to perform the operation Error Occurs when Accessing Printer Services in HP All in One F4100

This article describes about an error unable to perform the operation in in HP Printer C3100 C4100 C5100 C 6100 C7100 F4100 Series. This problem occurs due to conflict of Mozilla Firefox

1. Click **Start** and click **Control Panel**
2. Double click **Add/Remove Program**
3. Uninstall **Mozilla Firefox**
4. **Restart** the Computer
5. Click **Start** and then click **Run**
6. Type **Services.msc** and then press **Enter**

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7. **Locate** and **start** the print spooler service and select the startup type as Automatic
8. Locate and start the HP services and select the startup type as **Automatic**
9. Try to print the document.

Epson Printer May Be Unable to Print with the Epson Print Preview Option Enabled

To resolve this problem, you can disable the Printer Preview option:

1. In Control Panel, double-click **Printers and Faxes**.
2. **Right-click** the Epson printer, and then click **Properties**.
3. On the **General tab**, click **Printing Preferences**.
4. On the **Main tab**, click to **clear Print Preview**.

-OR-

If one is available, download an updated print driver for Windows XP from either of the following two Epson Web sites:

<http://support.Epson.com/filelibrary.html>

<http://www.Epson.com>

INFORMATION: The Print Preview option is a third-party feature that is available in some Epson print drivers. This option is not related to the print preview options that are included in many programs.

The Add Printer Wizard does not detect Bluetooth or wireless printer in Windows Vista.

Windows Vista provides fast and easy to use, share, and manage information on your computer. It also provides the Add Printer Wizard tool to add the network, wireless, or Bluetooth printer which is directly connected to your computer. Sometimes, the Add Printer Wizard does not detect Bluetooth or wireless printer.

To resolve the problem:

1. Make sure that the Bluetooth adapter is plugged into the computer and turned on.
2. Make sure that the Bluetooth printer is also turned on.
3. Remove the connection to Bluetooth printer, and then try again to detect it using the Add Printer Wizard.
4. If the Add Printer Wizard still does not detect the printer, check the information that came with the printer to make sure that it is set up correctly to work with computer, and then try again.

Cannot Use Network Printer If Your Password Is Not Saved

This problem can occur if you did not check the Remember my password check box when you initially provided your credentials to connect to the printer. The spooler will not prompt

you to provide alternate credentials again. When authentication fails with the credentials you used to log on, an error is generated

To work around this problem, click to select the Remember my password check box when you initially connect to the printer so the credential manager will save the proper user name and password to connect to the resource. If you have already set up the printer, delete the printer, and then reconnect to it to receive the prompt again



Check your understanding

1. What is remote printing process?
2. Name the .dll file which includes the Winprint?
3. What is local printing process?
4. Write the steps to install a network printer?
5. To establish a printer pool you need to add a port how will you do it?
6. How will you assign the print permissions to a user account?
7. What steps you will follow to cancel the print queue?
8. How many types of wireless standards are there? Define them.
9. What do you understand by CSMA/CA?
10. How will you fix the following issues?
 - The Add Printer Wizard does not detect Bluetooth or wireless printer in Windows Vista.
 - Unable to perform the operation Error Occurs when Accessing Printer Services in HP All in One F4100
 - Epson Printer May Be Unable to Print with the Epson Print Preview Option Enabled
 - Cannot Use Network Printer If Your Password Is Not Saved

Day 5

Module Objectives:

By the end of this module you will understand:

- Different types of security threats
- Types of security software available to protect users from these threats
- Architecture of Anti-Virus software & configuration
- Architecture of Anti-Spyware software & configuration
- Architecture of Firewall software & configuration
- Different security software supported by iYogi and their features
- Troubleshooting common issues related to virus & spywares

Security Threats

Security threats are primarily categorized in two forms:

Behavioral: more commonly known as social engineering, are designed to get you to install malicious software (malware), or to reveal personal information

Software: Generally provides unauthorized access to a malicious user that can use your personal information for wrong reasons.

Types of Security Threats

The following section will make you familiar with commonly used technical jargons.

Security Holes

Security holes are constantly discovered in all sorts of software and to plug the holes software vendors issue patches also called "Fixes" or security updates".

Flaws in Microsoft's software seem to be the most popular to exploit, so the American software giant releases a lot of patches. But other common desktop applications like Firefox, QuickTime, RealPlayer, Adobe Reader, Adobe Flash Player, and Sun Java Runtime Environment also often need to be patched to fix security issues.

Unfortunately, releasing patches also means that cyber-criminals are able to analyze the patch code and exploit the vulnerabilities that the patches were intended to deal with.

Computer Virus

A virus is a piece of program code that works like biological virus, makes copies of itself and spreads by attaching itself to a host, often damaging the host in the process. The host is another computer program, often a computer operating system, which then infects the applications that are transferred to other computers.

Computer Worm

A computer worm is a self-replicating computer program, similar to a computer virus. A virus attaches itself to, and becomes part of, another executable program; a worm is self-contained and does not need to be part of another program to propagate itself.

Keylogger

They are small programs or hardware devices that monitor each keystroke you type on a specific computer's keyboard, including typos, backspacing and retyping. According to experts, keystroke loggers pose more risk to PC users than any other tool used for committing cybercrime.

Rootkit

Rootkit are designed to hide themselves from detection by users and security programs, so they don't show up in Windows Explorer, the running processes don't display in the Task Manager, and many antivirus programs can't find rootkit hidden malware. They are created to allow worms, bots, and other malevolent software to hide in plain sight.

Pharming

Phishing uses fraudulent email messages to lure you to fake Web sites and try to get you to supply personal information like account passwords, pharming attacks redirect you to a hacker's site even when you type the address of a real site into your browser.

Pharming does not require that a user clicks on an email message or has a system compromised by a Trojan or a Keylogger, and therefore pharming is often described as "phishing without a lure."

Camouflaged Viruses

There are various methods of encrypting and packing malicious software which will make even well-known viruses undetectable to antivirus software. Detecting these viruses requires a powerful unpacking engine, which can decrypt the files before examining.

Dialer

Software that disconnects a modem and then dials another phone number

Spam

Spam is junk e-mail—unsolicited messages that fill your in box, advertising everything from software to medication to plastic surgery.

Spyware

This software automatically installs on a computer—in most cases, when downloading freeware or shareware—without the owner's knowledge or consent. Once installed, spyware monitors a user's activity, most often for advertising purposes. It also slows down system performance and even can be used to gather personal information.

Trojan horse

A program that pretends to be legitimate but in fact contains a virus

Malware

Malware is an abbreviated term used to describe a "malicious software" program. Malware includes things like spyware or adware programs, such as tracking cookies, which are used to monitor your surfing habits. It also includes more sinister items, such as Keylogger, Trojan horses, worms, and viruses.

Browser Hijack

A browser hijacker (sometimes called hijack ware) is a type of malware program that alters your computer's browser settings so that you are redirected to Web sites that you had no intention of visiting.

Popup

Pop-up ads or pop-ups are a form of online advertising on the World Wide Web intended to attract web traffic or capture email addresses. It works when certain web sites open a new web browser window to display advertisements. The pop-up window containing an advertisement is usually generated by JavaScript, but can be generated by other means as well.

Spam Relay

Sending email to a destination by using a third-party mail server or proxy server in order to hide the source of the mail, when e-mail servers (SMTP servers) are used, it is known as an "open relay" or "SMTP relay," and this method was commonly used by spammers in the past when SMTP servers were not locked down. Today, most spam relay is provided by proxy servers and Botnet.

Zombie

A zombie is a computer that a remote attacker has accessed and set up to forward transmissions (including spam and viruses) to other computers on the Internet. Typically, a zombie is a home-based PC whose owner is unaware that the computer is being exploited by an external party.

Remote Access Backdoor

RAT is an acronym for Remote Access Trojan. A RAT might have a functional use, but it is typically used to describe malicious code that is installed without the user's knowledge with the intent of monitoring the computer.

Identity Theft

Identity theft is a form of fraud in which someone pretends to be someone else by assuming that person's identity, typically in order to access resources or obtain credit and other benefits in that person's name.

Phishing

Phishing is the criminally fraudulent process of attempting to acquire sensitive information such as usernames, passwords and credit card details by masquerading as a trustworthy entity in an electronic communication.

Hacking

Hacking refers to the re-configuring or re-programming of a system to function in ways not facilitated by the owner, administrator, or designer.

Cracking

It is used to crack the software and use it as full version without purchasing it. The distribution and use of cracked copies is illegal.

Quarantine

When security software fails to clean the virus or spyware from the infected file, then it places the infected file in a virtual box known as quarantine where it cannot harm your computer.

Upgrade

All the security applications need to update the virus definitions update the scan engine with latest threats based on signature basis.

Parental Control

Some of the security software has a feature known as Parental Control used to restrict a child from accessing unwanted applications, websites etc.

Gaming Mode

While playing the games your system requires more resources so some of the security software's free-up some of the resources in gaming mode so that it does not impact the system performance.

Real Time Monitoring

Almost all the security software's monitor the various system activities to protect your computer against any malicious attack.

Boot Time Scan

On booting the computer generally the applications are loaded after you view the desktop screen. During this period as no security application is working it gives the chance to malicious applications to execute their code. To prevent your computer from this stage, the new versions of security applications get enabled before the window is loaded on booting the computer. This technique is called Boot Time Scan.

Port Scan Detection

Your computer uses different ports to communicate with different applications, devices and peripherals. Hackers try to scan and detect the open ports of the computer for intrusion purpose. New versions of Antivirus, Firewall are capable to detect any such scan.

Monitoring Instant Messenger

There is a possibility of a spyware; virus, Trojan might get downloaded while you are using the Instant Messenger. Latest Antivirus/ Antispyware applications are capable to monitor the activities of the Instant Messenger.

Bots

'Bot' is the common term used to describe a computer that can be remotely accessed and controlled in conjunction with thousands of other computers that have been compromised in the same fashion. Bots are created with malware that allows an individual unauthorized, remote access to a networked computer. This type of malware is known as a backdoor.

Security Software

Computer security software covers a wide variety of potential risks, including hacker intrusions, destruction of data, harmful viruses, Trojan horses and other malicious attacks. Computer security software is available either within the computer's operating system or add-ons freely downloaded or purchased. Computer security software offers peace of mind amid a growing array of risks that increase exponentially as more PCs become accessible through the Internet.

Security software can also be used to:

- Block unauthorized access of malicious users
- Identify phishing content
- Remove annoying adds
- Set restrictions
- Identify theft protection

The following section will describe about the security software's which can be used to protect your computer against above mentioned threats.

Antispyware

This software protects you against the spyware entering in your computer it monitors the internet activity, scan all the websites you surf and downloads you perform. Such programs inspect the contents of the Windows registry, the operating system files, and installed programs, and remove files and entries which match a list of known spyware components. Real-time protection from spyware works identically to real-time anti-virus protection: the software scans disk files at download time, and blocks the activity of components known to represent spyware.

Anti-spyware programs can combat spyware in two ways:

- They can provide real time protection against the installation of spyware software on your computer. This type of spyware protection works the same way as that of anti-virus protection in that the anti-spyware software scans all incoming network data for spyware software and blocks any threats it comes across.

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- Anti-spyware software programs can be used solely for detection and removal of spyware software that has already been installed onto your computer. This type of spyware protection is normally much easier to use and more popular. With this spyware protection software you can schedule weekly, daily, or monthly scans of your computer to detect and remove any spyware software that has been installed on your computer.

Antivirus

Antivirus (or anti-virus) software is used to prevent, detect, and remove malware, including computer viruses, worms, and Trojan horses. Such programs may also prevent and remove adware, spyware, and other forms of malware.

Signature-based detection involves searching for known malicious patterns in executable code. However, it is possible for a user to be infected with new malware for which no signature exists to counter this heuristics can be used.

Some antivirus software can also predict what a file will do if opened/run by emulating it in a sandbox and analyzing what it does to see if it performs any malicious actions. If it does, this could mean the file is malicious.

It can sometimes have drawbacks. Antivirus software can degrade computer performance if it is not designed efficiently. Inexperienced users may have trouble understanding the prompts and decisions that antivirus software presents.

Firewall

A firewall is designed to block unauthorized access while permitting authorized communications. It is a device or set of devices which is configured to permit or deny computer applications based upon a set of rules and other criteria.

Or, A firewall is a dedicated appliance, or software running on a computer, which inspects network traffic passing through it, and denies or permits passage based on a set of rules.

Firewalls can be implemented in either hardware or software, or a combination of both. Firewalls are frequently used to prevent unauthorized Internet users from accessing private networks connected to the Internet, especially intranets. All messages entering or leaving the intranet pass through the firewall, which examines each message and blocks those that do not meet the specified security criteria.

There are several types of firewall techniques:

- **Packet filter:** Packet filtering inspects each packet passing through the network and accepts or rejects it based on user-defined rules. Although difficult to configure, it is fairly effective and mostly transparent to its users. It is susceptible to IP spoofing.
- **Application gateway:** Applies security mechanisms to specific applications, such as FTP and Telnet servers. This is very effective, but can impose performance degradation.

- **Circuit-level gateway:** Applies security mechanisms when a TCP or UDP connection is established. Once the connection has been made, packets can flow between the hosts without further checking.
- **Proxy server:** Intercepts all messages entering and leaving the network. The proxy server effectively hides the true network addresses.

Phishing Filter

Anti-phishing software consists of computer programs that attempt to identify phishing content contained in websites and e-mail. It is often integrated with web browsers and email clients as a toolbar that displays the real domain name for the website the viewer is visiting, in an attempt to prevent fraudulent websites from masquerading as other legitimate web sites. Anti-phishing functionality may also be included as a built-in capability of some web browsers.

Phishing is one of the fastest growing threats on the Internet and a form of identity theft. It refers to high-tech scams using phony Web sites with actual brands designed to steal valuable personal information such as user names, passwords, credit card numbers, and Social Security numbers.

Phishers use many tactics including creating and sending e-mail messages or links to fraudulent Web sites or that appear to be valid in an attempt to fool you into submitting personal, financial, and password information.

Phishing Filter includes several patent-pending technologies designed to warn or block you from potentially harmful Web sites.

A built-in filter in your browser that scans the Web addresses and Web pages you visit for characteristics associated with known online Web fraud or phishing scams, and warns you if sites you visit are suspicious.

- **SmartScreen Filter** is a feature in Internet Explorer 8 that helps you avoid socially engineered malware phishing Web sites and online fraud when you browse the Web. It checks web sites against a dynamically updated list of reported phishing and sites. Checks software downloads against a dynamically updated list of reported malicious software sites. Thus prevent you from visiting phishing Web sites and other Web sites that contain malware that can lead to identity theft.

Ad Blocker

Ad Blocker is a small, effective, and intelligent anti-ad software product that can remove annoying ads without human intervention. It features a smart engine that can identify possible ads and remove them even before you can see them.

Ad block Plus in Mozilla Firefox allows you to regain control of the internet and view the web the way you want to. The add-on is supported by over forty filter subscriptions in dozens of languages which automatically configure it for purposes ranging from removing online advertising to blocking all known malware domains.

Internet Explorer 7 and 8 comes with ad blocker feature.

- **For IE 8**

1. Open Internet Explorer 8
2. Click on Tools > Manage Add-ons
3. Make sure Toolbars and Extensions is selected
4. Scroll down until you see af0.Adblock.BHO with the status Enabled

Privacy Manager

When you surf the Internet and suddenly leave your PC. Your Internet Explorer browser keeps opened for unwanted persons and you might lose your personal information. Privacy Manager helps you to protect your personal information.

You can configure your privacy settings in Internet Explorer 6 by clicking Internet Options on the Tools menu, and then clicking the Privacy tab.

The following Privacy settings are available with the slider:

- **Block All Cookies:** Cookies from all Web sites will be blocked, and existing cookies on your computer cannot be read by the Web sites that created them. Per-site privacy actions do not override these settings.
- **High:** Blocks cookies that do not have a compact privacy policy or that have a compact privacy policy which specifies that personally identifiable information is used without your explicit consent.
- **Medium High:** Blocks third-party cookies that do not have a compact privacy policy or that use personally identifiable information without your explicit consent. Blocks a first-party cookie which specifies that personally identifiable information is used without your implicit consent.
- **Medium (default level):** Blocks third-party cookies that do not have a compact privacy policy or that have a compact privacy policy which specifies that personally identifiable information is used without your implicit consent. First-party cookies that have a compact privacy policy which specifies that personally identifiable information is used without your implicit consent are downgraded (deleted when you close Internet Explorer).
- **Low:** First-party cookies that do not have a compact privacy policy are leashed (restricted so that they can only be read in the first-party context).
- **Accept All Cookies:** All cookies will be saved on your computer, and existing cookies on your computer can be read by the Web sites that created them. Per-site privacy actions do not override these settings

Parental Control

Parental controls helps to set restrictions while their children are using devices and services. From Windows Vista onwards Microsoft has bundled the Parental Control application with the operating system.

Parental control software may monitor API in order to observe applications such as a web browser or Internet chat application and to intervene according to certain criteria, such as a match in a database of banned words.

It allows you to perform following actions:

- Setting the time limit to access internet
- Settings the list of trusted websites
- Settings the list of explicit keywords to be blocked by parental control
- Setting the application permissions
- Settings the permissions for instant messenger, email clients etc
- It allows you to generate the report of all the activities performed by your child and then email to the desired email address.

Identity Theft Protection Software

Identity theft, also known as ID theft is a crime in which a criminal obtains key pieces of personal information, such as Social Security or driver's license numbers, in order to pose as someone else. The information can be used to obtain credit, merchandise, and services using the victims' name.

There are two main types of identity theft – account takeover and true name theft. Account takeover identity theft refers to the type of situation where an imposter uses the stolen personal information to gain access to the person's existing accounts. Often the identity thief will use the stolen identity to acquire even more credit products by changing your address so that you never see the credit card bills that the thief runs up.

True name identity theft means that the thief uses personal information to open new accounts. The thief might open a new credit card account, establish cellular phone service, or open a new checking account in order to obtain blank checks.

Few common security threats and their resolutions:

Security Threat	Security Software
Computer Virus, Computer Worms, Trojan Horses, Malware	Antivirus
Network Threats	Firewall, such as, packet filter, application gateway, circuit-level gateway, proxy server
Pharming/Phishing	Phishing Filter, such as, SmartScreen Filter
Annoying Ads	Ad Blocker
Browser Hijack	Privacy Manager
Identity Theft	Identity Theft Protection application
Spyware	Antispyware
Spam	Anti-spamming Software

Comparison of Antivirus Software

Threat Detection	Bit Defender	Kaspersk y AV	Norton AV	AVG AV	F-Secure	Avira AV	Trend Micro
Virus	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Worm	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trojan	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spyware	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Malware	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rootkit	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Protection							
Browser Exploits	Yes	Yes	Yes	Yes	Yes	Yes	
OS Exploits	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Key logger	Yes	Yes		Yes	Yes		Yes
Inbound Email Protection	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Outbound Email Protection	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Instant Messaging Protection	Yes	Yes	Yes	Yes	Yes		Yes
P2P/File Sharing Protection	Yes	Yes		Yes	Yes		
Registry Startup Protection	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dialers	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Backdoor	Yes	Yes	Yes	Yes	Yes	Yes	
Hackers	Yes	Yes	Yes	Yes	Yes		Yes
Phishing	Yes	Yes	Yes	Yes	Yes	Yes	
Identity Theft Protection	Yes	Yes	Yes	Yes	Yes		Yes
Adware	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ActiveX	Yes	Yes	Yes	Yes	Yes		Yes
Vulnerabilities	Yes	Yes	Yes	Yes	Yes		Yes
Cookies	Yes	Yes	Yes	Yes	Yes		Yes
Scripts	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Full Web Protection	Yes	Yes	Yes	Yes		Yes	
Spam							
Auto USB Detect	Yes	Yes					Yes
Protection Technology	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Virus Signatures	Yes	Yes	Yes	Yes	Yes		Yes
Blacklisting		Yes	Yes	Yes	Yes		Yes
White listing	Yes	Yes	Yes	Yes	Yes		Yes
Heuristics	Yes	Yes	Yes	Yes	Yes	Yes	
Real-Time	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Security Network		Yes	Yes		Yes		
Scanning Capabilities							
Scanning Capabilities	Yes	Yes	Yes	Yes	Yes	Yes	Yes
On-access Scanning	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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Threat Detection	Bit Defender	Kaspersk y AV	Norton AV	AVG AV	F-Secure	Avira AV	Trend Micro
On-demand Scanning	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Manual Scanning	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quick & Deep Scan	Yes	Yes	Yes	Yes	Yes		Yes
Optimized Scanning	Yes	Yes	Yes	Yes		Yes	Yes
Scan Individual Files	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exclude Files	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Scan Compressed Files	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarantines Infected Files	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Auto-Clean Infected Files	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Scan USB (and other external drives)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Features							
Password Protect Settings	Yes	Yes	Yes			Yes	Yes
Adjustable Security Levels	Yes	Yes	Yes			Yes	
User Profiles	Yes	Yes					
Self-Defense	Yes	Yes	Yes			Yes	Yes
Scheduling	Yes	Yes	Yes	Yes	Yes	Yes	Yes
History/Report Logging	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Silent / Gamer Mode	Yes	Yes	Yes	Yes			
Laptop / Battery Saving Mode	Yes	Yes	Yes	Yes			
Link Scanner	Yes	Yes	Yes				
Bootable Rescue CD	Yes	Yes	Yes	Yes	Yes	Yes	
Free Virus Scan Online	Yes	Yes	Yes	Yes	Yes		Yes
Updates							
Automatic Definition Updates	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Manual Definition Updates	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Scheduled Updates		Yes	Yes	Yes		Yes	Yes
Pulse/Push Updates	Yes		Yes	Yes	Yes		
Rollback		Yes		Yes	Yes		Yes
Update with Proxy Server	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Firewall Comparison Chart

Features	Zone Alarm	Norton Internet Security	McAfee Firewall
Email protection	Yes		
File Protection	Yes	Yes	Yes
Personal Information Protection	Yes	Yes	Yes
Registry Protection	Yes		
Port Monitoring	Yes	Yes	Yes
Network Traffic Monitor	Yes	Yes	Yes
Data Filtering	Yes	Yes	Yes
Intruder/Hacker Detection Tools	Zone Alarm	Norton Internet Security	McAfee Firewall
Intruder Alert	Yes	Yes	Yes
Intruder ID Lookup	Yes	Yes	Yes
Intruder Tracking Log	Yes	Yes	Yes
Internet Tools	Zone Alarm	Norton Internet Security	McAfee Firewall
Stealth Mode	Yes	Yes	Yes
Popup Blocking	Yes	Yes	Yes
Cookie Blocking	Yes	Yes	
Spyware Blocking	Yes	Yes	Yes
Browser History Blocking	Yes		
Parental Controls			
Trusted Websites List	Yes	Yes	Yes
Blocked Websites List	Yes	Yes	Yes
Website History Log	Yes		
Setup and Management	Zone Alarm	Norton Internet Security	McAfee Firewall
Password Protection	Yes		
Individual User Settings	Yes		
Network Time Restrictions	Yes	Yes	
Preset Firewall Defaults	Yes	Yes	Yes
Automatic Software Rules	Yes	Yes	Yes
Instantly Disable Firewall	Yes	Yes	Yes
Instantly Block All Traffic	Yes		

Prerequisites before installing Security Software

The following are the prerequisites before installing Security Software:

- Administrative Rights to install the software.
- Create a System Restore Point.
- Please remove any previous Anti-Virus / Spyware software from your computer. Failure to do so will cause system instabilities.
- Sometimes, Anti-Virus products are hard to completely remove from the computer. It is recommended that you download and run a removal tool to ensure that all the remnants have been removed.
- Download the setup file from the manufacturer's website if you don't have the installation disc.
- Disconnect the Internet Connection
- Disable Windows Firewall
- Install the security application either by using the installation disc or running the downloaded setup file.
- Enable the Windows Firewall or the Security Software Firewall
- Connect to Internet
- To activate your software, please refer to your activation code that is provided via email or by the technician.

System Requirements to Install Security Software

System Requirements	Bit Defender	Kaspersky AV	Norton AV	AVG AV	F-Secure	Avira AV	Trend Micro
Operating System							
Windows 7 (32 bit)	Yes	Yes	Yes				Yes
Windows 7 (64 bit)	Yes	Yes	Yes				Yes
Windows Vista (32 bit)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Windows Vista (64 bit)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Windows XP (32 bit)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Windows XP (64 bit)	Yes	Yes		Yes		Yes	
RAM							
Windows XP	512 MB	128 MB	512 MB	256 MB	256 MB	192 MB	256 MB
Windows Vista	1 GB	512 MB	512 MB	256 MB	256 MB	512 MB	512 MB
Windows 7	1 GB	512 MB	512 MB				512 MB
HDD Space							
Windows XP	450 MB	300 MB	200 MB	250 MB	600 MB	100 MB	400 MB
Windows Vista	600 MB	300 MB	200 MB	250 MB	600 MB	100 MB	400 MB

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Windows 7	600 MB	300 MB	200 MB				400 MB
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Check your understanding

- What do you understand by the following?
 - Security Holes
 - Keylogger
 - Pharming
 - Spyware
 - Browser Hijack
 - Hacking
 - Quarantine
 - Parental Control
 - Gaming Mode
 - Port Scan Detection
 - Bots
- How Antispyware can protect your computer?
- What is the difference between Antispyware and Antivirus?
- How Firewall helps to protect your computer against any malicious attack?
- How many types of Firewall are there? Describe briefly about them?
- What is Privacy Manager? How will you customize the settings?
- What is Parental Control? Write the benefits of Parental Control?
- Norton Antivirus cannot protect your computer from Keylogger?
True/False
- Avira Antivirus cannot protect your computer against Rootkit attacks?
True/False
- What do you understand by the term White List. Name any three Security Applications using White List technology?
- What are the prerequisites to install Security Software?
- How much space is required to install BitDefender on Windows 7 operating system?
- What is the minimum RAM required to install F-Secure on Windows Vista operating system?
- Which of the following Antivirus applications does not support Windows XP 64 bit operating system?
 - BitDefender
 - Kaspersky
 - Norton
 - AVG
 - F-Secure
 - Avira
 - Trend Micro

Troubleshooting Security Software

Scenario 1

You might get an error message related to Windows Installer. This means the Windows Installer is corrupt.

Solution

Follow the below methods to surpass the above issue:

Method 1: Reregister the Windows Installer

1. **Quit** all Windows programs.
2. Click **Start**, click **Run**, type `msiexec /unregister` in the Open box, and then click **OK**.
3. Click **Start**, click **Run**, type `msiexec /regserver` in the Open box, and then click **OK**.
4. **Restart** your computer.

Method 2: Remove the Windows Installer files

1. **Quit** all Windows programs.
2. Click **Start**, click **Run**, type `msiexec /unregister` in the Open box, and then click **OK**.
3. In Windows Explorer, rename the following files in the `%systemroot%\System32` folder:
 - Msi.dll
 - Msihnd.dll
 - Msiexec.exe

Note: *If you cannot rename these files, try to rename the files at a command prompt. To start a command prompt, click Start, click Run, type `cmd` in the Open box, and then click OK.*

4. **Restart** Windows XP.

Method 3: Restart Windows XP in Safe Mode

Restart Windows XP in Safe Mode, and then retry Method 1 and Method 2

Method 4: Download latest version of Windows Installer

Download and install the latest version of Windows Installer from Microsoft website. This will upgrade the installed version.

Scenario 2

Already installed security software is not allowing to install the product thus causing a conflict or error during installation process

Solution

Do the following steps:

1. Create a **System Restore Point**
2. **Check** Add/ Remove Program and remove the already installed security software.
3. If fail to do so then download the removal tool from the product manufacturer's website and run the tool to remove the program
4. **Reboot** the computer
5. **Install** the security software

Scenario 3

There might be a possibility that the computer is already infected by any virus or spyware which is not allowing to install the security software

Solution

Do the following steps:

1. Create a **system restore point**
2. **Update** the virus definitions if there is an Antivirus/ Antispyware is already installed
3. Run the **Scan**
4. If there is no Antivirus/ Antispyware installed then you can run the online scan. Following links can be used for online scan:

- <http://home.mcafee.com/Downloads/FreeScanDownload.aspx?affid=0>
- <http://housecall.trendmicro.com/>
- <http://www.bitdefender.com/scanner/online/free.html>
- http://www.f-secure.com/en_EMEA/security/tools/online-scanner/

Scenario 4

It might be a possibility that you have removed the already install Antivirus/ Antispyware application but it is not completely removed thus causing a conflict or error while installing another security application.

Solution

In such circumstances do the following:

1. **Download** the removal tool, from the product manufacturer's website
2. **Run** the tool

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3. **Reboot** the computer
4. **Install** another security software

Scenario 5

It might be a possibility that user is unable to use the internet after installing the security software.

Solution

This generally happens when the newly installed security software blocks the ports used to browse the web pages due to security reasons. In such scenarios do the following:

1. **Open** the Security Software
2. Go to **Settings/ Advance Settings**, where you can allow the ports
3. **Open** or allow port number 80 and 443 to browse the website
4. If you are using MS Outlook or any email client to check your mails then allow port numbers 110, 25.
5. You can also contact your ISP for the port number used for SSL Accounts and the allow the given port numbers

Scenario 6

It might be a case when you are not able to boot the computer after installing the security software

Solution

In such scenarios do the following:

A- Try to boot the computer by using LKGC

1. **Boot** the computer by using Advance boot options (Safe Mode)
2. Select the option **Last known good configuration** and then press Enter

B- Perform Clean Boot

1. **Boot** the computer by using Advance boot options (Safe Mode)
2. Select **Safe Mode option** and then press Enter
3. Perform clean boot by using **Msconfig**

C- Use System Restore via Command Prompt

1. **Boot** the computer by using **Advance boot options** (Safe Mode)
2. Select **Command Prompt** option and then press **Enter**
3. On the command prompt type the following commands:
4. **CD WINDOWS** and then press Enter
5. **CD SYSTEM32** and then press Enter
6. **CD RESTORE** and then press Enter

7. **RSTRUI** and then press Enter

D- Unable to boot XP based computer in Normal and Safe Mode

Computer Restarts after the XP logo. Computer is unable to boot to safe mode or any other options listed. Computer will show the ARC paths and hang at agp440 on the last line of the screen

This error is found to be caused by an incompatible/corrupted video driver. Follow these steps to resolve the issue

1. **Boot** computer in **Recover Console**
2. At the Command Prompt type ListSvc Check out if you have the AGP440 listed there.
3. Check for Agp440 service and that the startup type is set to 'Boot'
4. At the command prompt now type Disable Agp440 and press enter.
5. You will receive a message that the registry setting for this service was found, and that its current startup state is 'service_disabled'.
6. Type **exit**, and then press **ENTER**.
7. If you are prompted to start in Safe mode or Normal mode, start in Normal Mode.
8. Windows XP includes default video drivers that make it possible for the system to work.

Anti-Virus Architecture & Configuration

Computer viruses are small software programs that are designed to spread from one computer to another and to interfere with computer operation. A virus might corrupt or delete data on your computer, use your e-mail program to spread itself to other computers, or even erase everything on your hard disk.

Computer viruses are often spread by attachments in e-mail messages or instant messaging messages. That is why it is essential that you never open e-mail attachments unless you know who it's from and you are expecting it. Viruses can be disguised as attachments of funny images, greeting cards, or audio and video files.

Antivirus (or anti-virus) software is used to prevent, detect, and remove malware, including computer viruses, worms, and Trojan horses. Such programs may also prevent and remove adware, spyware, and other forms of malware.

Scan Engine Technologies

An antivirus software program is a computer program that can be used to scan files to identify and eliminate computer viruses and other malicious software. Antivirus software typically uses two different techniques to accomplish this:

- Examining files to look for known viruses by means of a virus dictionary.
- Identifying suspicious behavior from any computer program which might indicate infection.

Most antivirus software uses both of these approaches.

Virus dictionary approach

In the virus dictionary approach, when the anti-virus software examines a file, it refers to a dictionary of known viruses that have been identified by the author of the anti-virus software. If a piece of code in the file matches any virus identified in the dictionary, then the anti-virus software can then either delete the file, quarantine it so that the file is inaccessible to other programs and its virus is unable to spread, or attempt to repair the file by removing the virus itself from the file.

Suspicious behavior approach

The suspicious behavior approach, by contrast, doesn't attempt to identify known viruses, but instead monitors the behavior of all programs. If one program tries to write data to an executable program, for example, this is flagged as suspicious behavior and the user is alerted to this, and asked what to do.

Unlike the dictionary approach, the suspicious behavior approach therefore provides protection against brand-new viruses that do not yet exist in any virus dictionaries.

Other ways to detect viruses

- **Reading the beginning part of executable codes:** Some antivirus software will try to emulate the beginning of the code of each executable file when it tries to run execute the code. If the program seems to be using self modifying code or tries to find other executables, then one could assume that the executable has been infected with a virus. However, this method results in a lot of false positives.
- **Sandbox Technology:** A sandbox emulates the operating system and runs the executable in this simulation. After the program has terminated, the sandbox is analyzed for changes which might indicate a virus. Because of performance issues this type of detection is normally only performed during on-demand scans.
- **Heuristic Technology:** Heuristic is a type of generic scanning that looks through the lines of code, not for exact matches to virus definitions, but for suspicious code. The antivirus makes intelligent assumptions based on the scrutinized code to determine whether or not a file has a virus in it by looking at how the file or program is constructed and acts.
- **On-Demand Scan:** It allows a user to check the individual files or an entire hard disk for virus or malware. User can also specify the settings in the user interface of the antivirus program.
- **On-Access Scan:** The virus guard is permanently active in the background and works at the Operating System level. It intercepts all the data accessed by applications and examines the actions for malicious intent.

About Quarantine Process

If any virus is detected then Antivirus Program has three options, Clean, Quarantine and Delete.

- **Clean:** Attempts to remove the infection from the file.
- **Quarantine:** Attempts to move the file to a safe location that is managed by the antivirus software.
- **Delete:** Removes the file completely from the system.

By default antivirus programs are designed to perform the following steps:

1. First it tries to **clean** the infected file.
2. If it fails, then it will **quarantine** the file by default.
3. It also displays an alert message, to delete the infected file or to quarantine it.
4. Some Antivirus programs allow you to send the infected file to manufacture's support lab for testing.

When Antivirus programs fails to clean an infected file, then it blocks the file from executing the program, to protect your computer from any further damage. Sometimes Antivirus Program quarantines a safe or trusted thus blocking the access of a particular application. In such scenarios antivirus applications allow you to restore the file from the quarantine section.

Antispyware Architecture & Configuration

Antispyware helps protect your computer against pop-ups, slow performance, and security threats caused by spyware and other unwanted software. To keep up with the latest forms of spyware, you must keep your antispyware updated.

Software that displays pop-up advertising on your computer collects and relays your personal information, or changes the configuration of your computer, without appropriately obtaining your consent first, is called spyware.

Many kinds of unwanted software, including spyware, are designed to be difficult to remove. If you try to uninstall this software like any other program, you might find that the program reappears as soon as you restart your computer.

Similarities between Antivirus and Antispyware Programs

Both Antivirus and Antispyware programs use the same technology to detect a virus or a spyware. These programs use the following technologies:

- Examining files to look for known viruses or spywares by means of a dictionary or database.

- Identifying suspicious behavior from any computer program which might indicate infection.

Dictionary Approach

In the dictionary or database approach, when the antispyware software examines a file, it refers to a dictionary of known spywares that have been identified by the author of the antispyware software.

Suspicious Behavior Approach

The suspicious behavior approach, doesn't attempt to identify known spywares, but instead monitors the behavior of all programs. The suspicious behavior approach therefore provides protection against brand new spywares that do not yet exist in any spywares dictionaries.

Other Ways to Detect Viruses

- **Sandbox Technology:** A sandbox emulates the operating system and runs the executable in this simulation. After the program has terminated, the sandbox is analyzed for changes which might indicate a spyware. Because of performance issues this type of detection is normally only performed during on-demand scans.
- **Heuristic Technology:** Heuristic is a type of generic scanning that looks through the lines of code, not for exact matches to spyware definitions, but for suspicious code. The antispyware makes intelligent assumptions based on the scrutinized code to determine whether or not a file has a spyware in it by looking at how the file or program is constructed and acts.

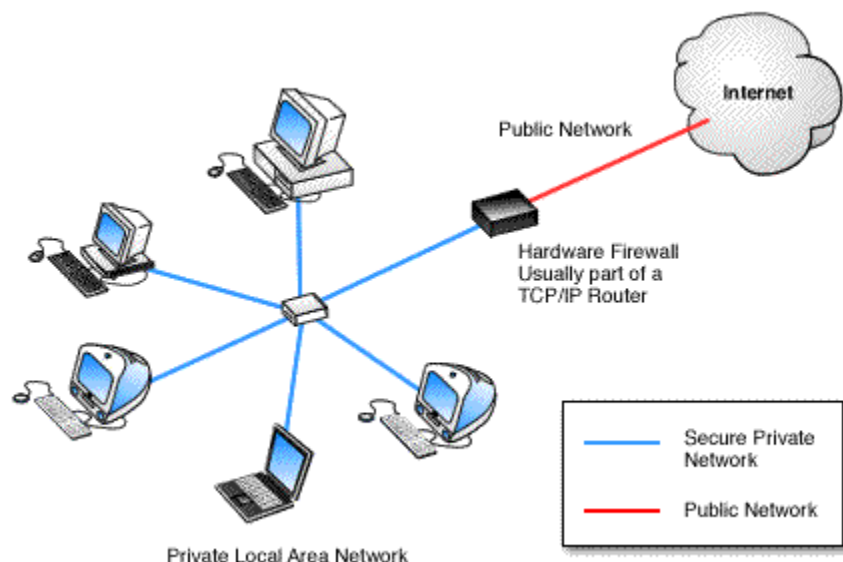
Firewall Architecture & Configuration

The Internet has made large amounts of information available to the average computer user at home, in business and in education. For many people, having access to this information is no longer just an advantage, it is essential. Yet connecting a private network to the Internet can expose critical or confidential data to malicious attack from anywhere in the world. Users who connect their computers to the Internet must be aware of these dangers, their implications and how to protect their data and their critical systems. Firewalls can protect both individual computers and corporate networks from hostile intrusion from the Internet.

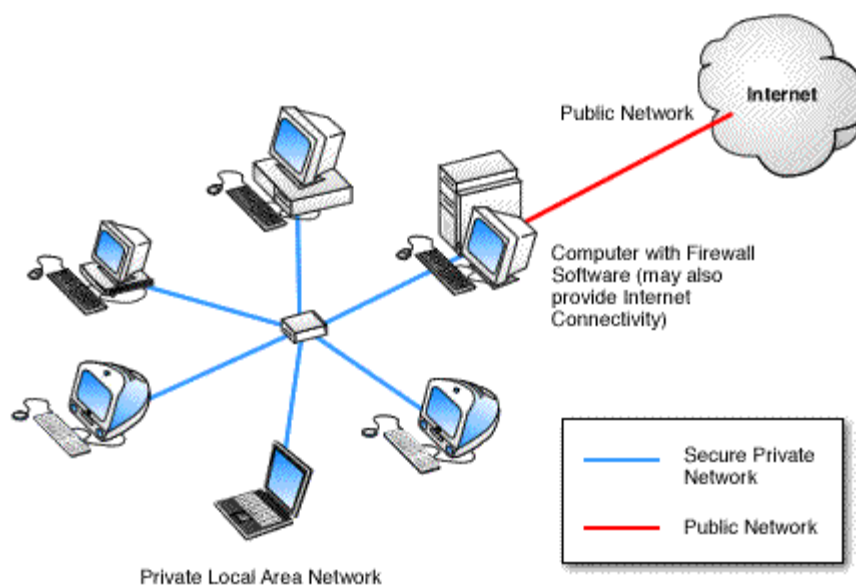
What is a firewall?

A firewall protects networked computers from intentional hostile intrusion that could compromise confidentiality or result in data corruption or denial of service. It may be a hardware device or a software program running on a secure host computer. In either case, it must have at least two network interfaces, one for the network it is intended to protect, and one for the network it is exposed to.

A firewall sits at the junction point or gateway between the two networks, usually a private network and a public network such as the Internet. The earliest firewalls were simply routers. The term firewall comes from the fact that by segmenting a network into different physical sub-networks, they limited the damage that could spread from one subnet to another just like fire doors or firewalls. Hardware firewall providing protection to a Local Network



Computer running firewall software to provide protection



What does a firewall do?

A firewall examines all traffic routed between the two networks to see if it meets certain criteria. If it does, it is routed between the networks, otherwise it is stopped. A firewall filters both inbound and outbound traffic. It can also manage public access to private networked resources such as host applications. It can be used to log all attempts to enter the private network and trigger alarms when hostile or unauthorized entry is attempted. Firewalls can filter packets based on their source and destination addresses and port numbers. This is known as address filtering. Firewalls can also filter specific types of network traffic. This is also known as protocol filtering because the decision to forward or reject traffic is dependent upon the protocol used, for example HTTP, ftp or telnet. Firewalls can also filter traffic by packet attribute or state.

What can't a firewall do?

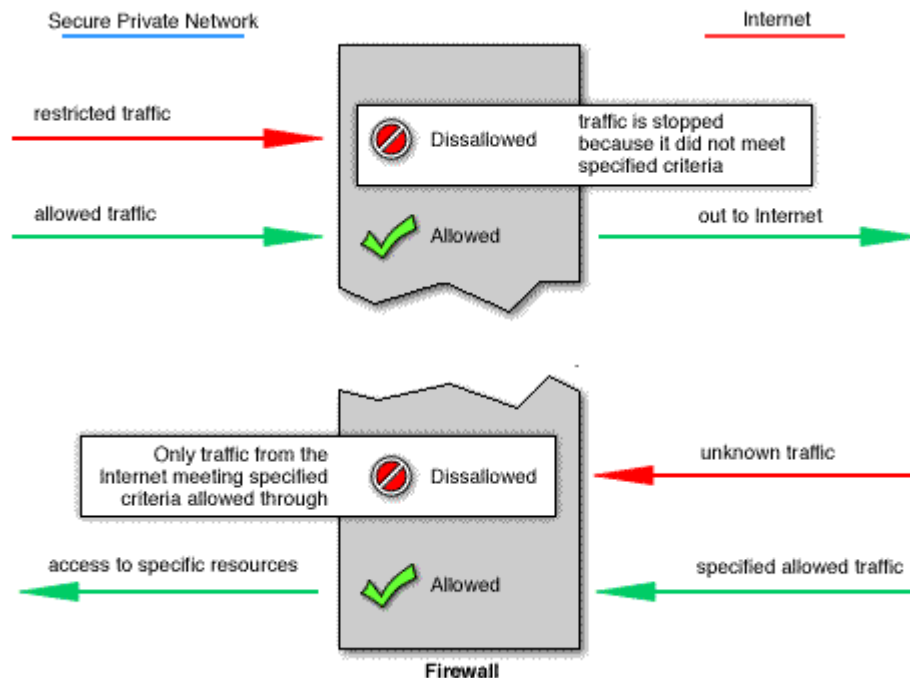
A firewall cannot prevent individual users with modems from dialing into or out of the network, bypassing the firewall altogether. Employee misconduct or carelessness cannot be controlled by firewalls. Policies involving the use and misuse of passwords and user accounts must be strictly enforced. These are management issues that should be raised during the planning of any security policy but that cannot be solved with firewalls alone.

Who needs a firewall?

Anyone who is responsible for a private network that is connected to a public network needs firewall protection. Furthermore, anyone who connects so much as a single computer to the Internet via modem should have personal firewall software. Many dial-up Internet users believe that anonymity will protect them. They feel that no malicious intruder would be motivated to break into their computer. Dial up users who have been victims of malicious attacks and who have lost entire days of work, perhaps having to reinstall their operating system, know that this is not true. Irresponsible pranksters can use automated robots to scan random IP addresses and attack whenever the opportunity presents itself.

How does a firewall work?

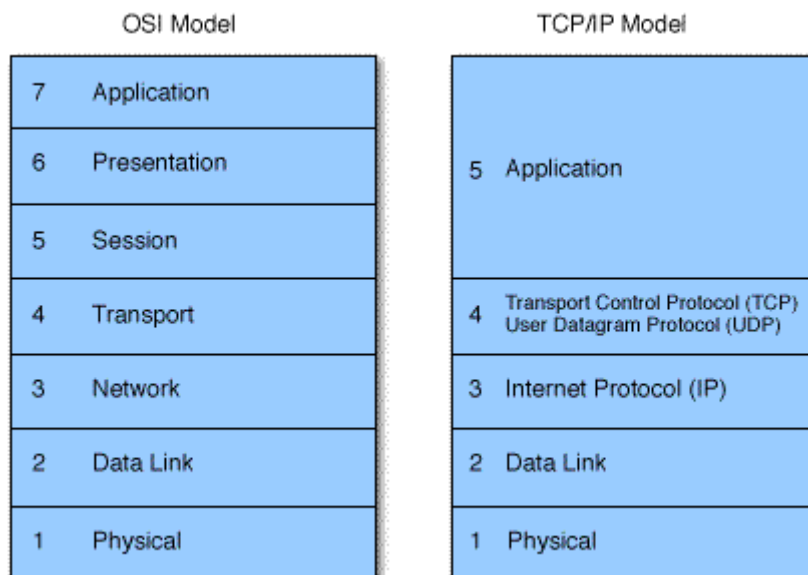
There are two access denial methodologies used by firewalls. A firewall may allow all traffic through unless it meets certain criteria, or it may deny all traffic unless it meets certain criteria. The type of criteria used to determine whether traffic should be allowed through varies from one type of firewall to another. Firewalls may be concerned with the type of traffic, or with source or destination addresses and ports. They may also use complex rule bases that analyze the application data to determine if the traffic should be allowed through. How a firewall determines what traffic to let through depends on which network layer it operates at. A discussion on network layers and architecture follows.



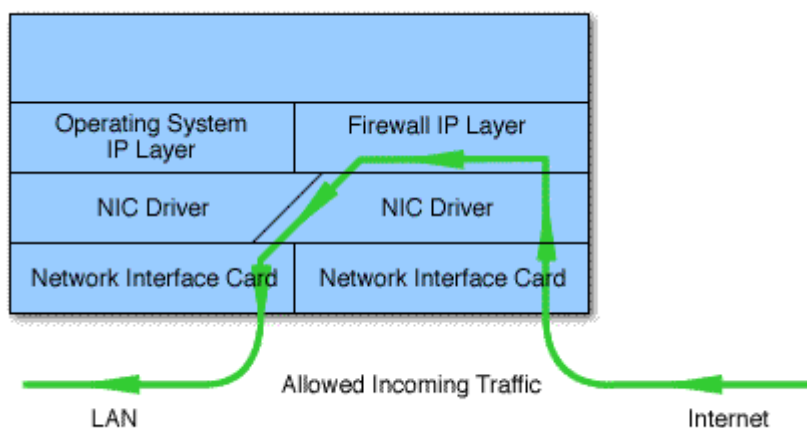
What are the OSI and TCP/IP Network models?

To understand how firewalls work it helps to understand how the different layers of a network interact. Network architecture is designed around a seven layer model. Each layer has its own set of responsibilities, and handles them in a well-defined manner. This enables networks to mix and match network protocols and physical supports. In a given network, a single protocol can travel over more than one physical support (layer one) because the physical layer has been dissociated from the protocol layers (layers three to seven). Similarly, a single physical cable can carry more than one protocol. The TCP/IP model is older than the OSI industry standard model which is why it does not comply in every respect. The first four layers are so closely analogous to OSI layers however that interoperability is a day to day reality.

Firewalls operate at different layers to use different criteria to restrict traffic. The lowest layer at which a firewall can work is layer three. In the OSI model this is the network layer. In TCP/IP it is the Internet Protocol layer. This layer is concerned with routing packets to their destination. At this layer a firewall can determine whether a packet is from a trusted source, but cannot be concerned with what it contains or what other packets it is associated with. Firewalls that operate at the transport layer know a little more about a packet, and are able to grant or deny access depending on more sophisticated criteria. At the application level, firewalls know a great deal about what is going on and can be very selective in granting access.



It would appear then, that firewalls functioning at a higher level in the stack must be superior in every respect. This is not necessarily the case. The lower in the stack the packet is intercepted, the more secure the firewall. If the intruder cannot get past level three, it is impossible to gain control of the operating system.



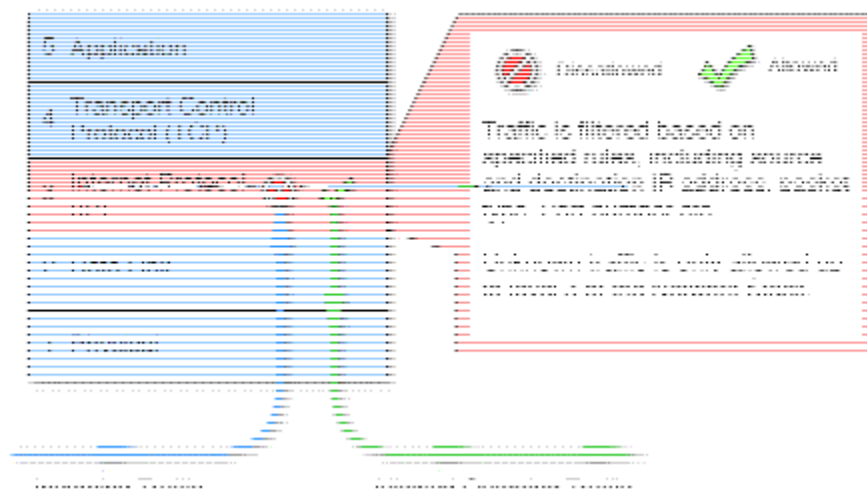
Professional firewall products catch each network packet before the operating system does, thus, there is no direct path from the Internet to the operating system's TCP/IP stack. It is therefore very difficult for an intruder to gain control of the firewall host computer then "open the doors" from the inside.

What different types of firewalls are there?

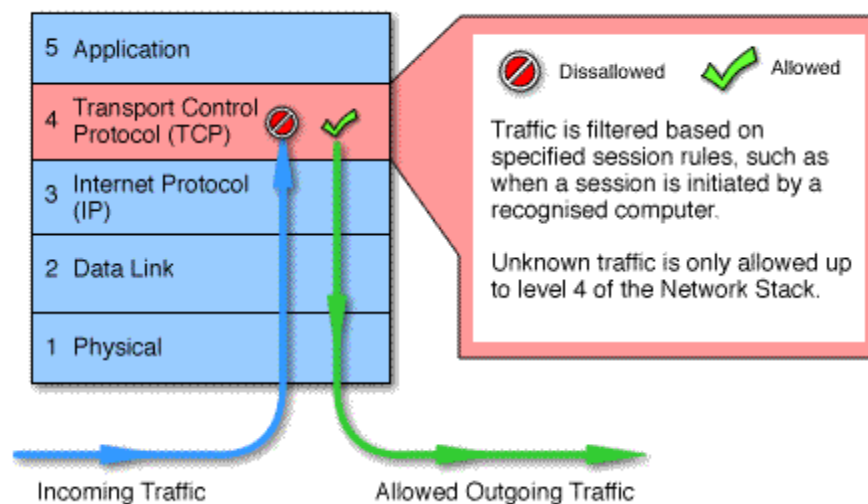
Firewalls fall into four broad categories:

- Packet filters
- Circuit level gateways
- Application level gateways
- Stateful multilayer inspection firewalls.

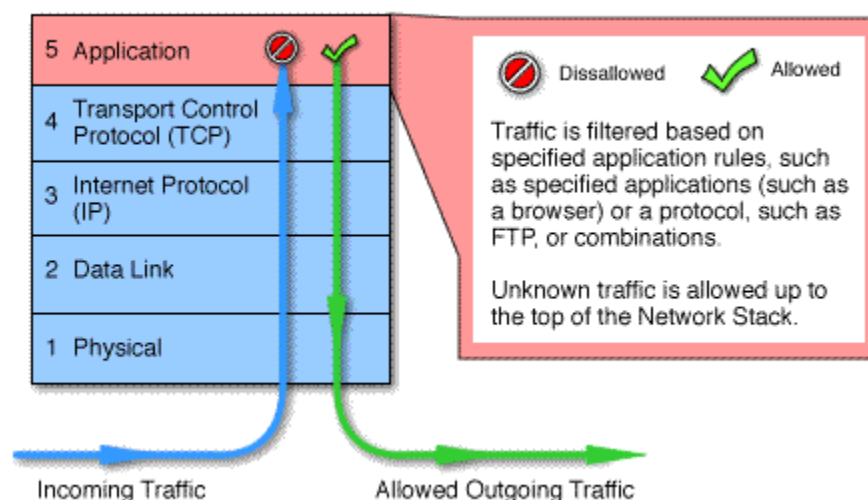
Packet filtering firewalls work at the network level of the OSI model, or the IP layer of TCP/IP. They are usually part of a router. A router is a device that receives packets from one network and forwards them to another network. In a packet filtering firewall each packet is compared to a set of criteria before it is forwarded. Depending on the packet and the criteria, the firewall can drop the packet, forward it or send a message to the originator. Rules can include source and destination IP address, source and destination port number and protocol used. The advantage of packet filtering firewalls is their low cost and low impact on network performance. Most routers support packet filtering. Even if other firewalls are used, implementing packet filtering at the router level affords an initial degree of security at a low network layer. This type of firewall only works at the network layer however and does not support sophisticated rule based models. Network Address Translation (NAT) routers offer the advantages of packet filtering firewalls but can also hide the IP addresses of computers behind the firewall, and offer a level of circuit-based filtering.



Circuit level gateways work at the session layer of the OSI model, or the TCP layer of TCP/IP. They monitor TCP handshaking between packets to determine whether a requested session is legitimate. Information passed to remote computer through a circuit level gateway appears to have originated from the gateway. This is useful for hiding information about protected networks. Circuit level gateways are relatively inexpensive and have the advantage of hiding information about the private network they protect. On the other hand, they do not filter individual packets.

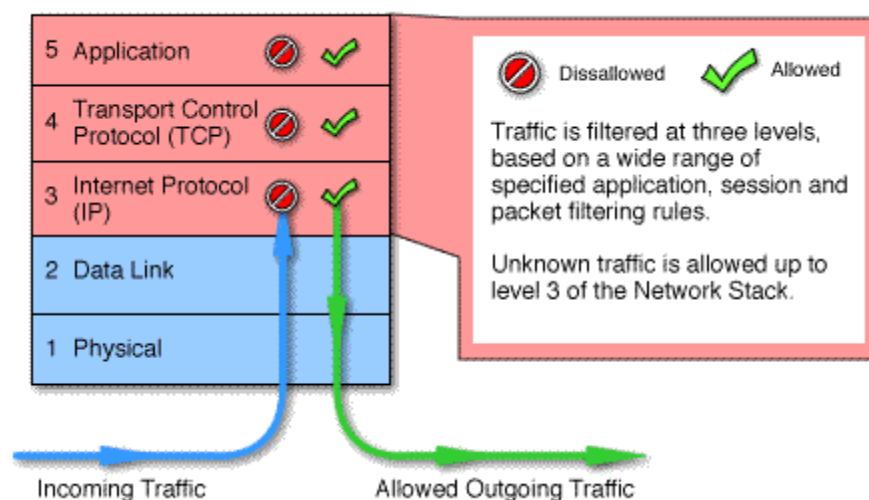


Application level gateways also called proxies, are similar to circuit-level gateways except that they are application specific. They can filter packets at the application layer of the OSI model. Incoming or outgoing packets cannot access services for which there is no proxy. In plain terms, an application level gateway that is configured to be a web proxy will not allow any ftp, gopher, telnet or other traffic through. Because they examine packets at application layer, they can filter application specific commands such as http:post and get, etc. This cannot be accomplished with either packet filtering firewalls or circuit level neither of which know anything about the application level information. Application level gateways can also be used to log user activity and logins. They offer a high level of security, but have a significant impact on network performance. This is because of context switches that slow down network access dramatically. They are not transparent to end users and require manual configuration of each client computer.



Stateful multilayer inspection firewalls combine the aspects of the other three types of firewalls. They filter packets at the network layer, determine whether session packets are legitimate and evaluate contents of packets at the application layer. They allow direct

connection between client and host, alleviating the problem caused by the lack of transparency of application level gateways. They rely on algorithms to recognize and process application layer data instead of running application specific proxies. Stateful multilayer inspection firewalls offer a high level of security, good performance and transparency to end users. They are expensive however, and due to their complexity are potentially less secure than simpler types of firewalls if not administered by highly competent personnel.



How do I implement a firewall?

1. Determine the access denial methodology to use.

It is recommended you begin with the methodology that denies all access by default. In other words, start with a gateway that routes no traffic and is effectively a brick wall with no doors in it.

2. Determine inbound access policy.

If all of your Internet traffic originates on the LAN this may be quite simple. A straightforward NAT router will block all inbound traffic that is not in response to requests originating from within the LAN. As previously mentioned, the true IP addresses of hosts behind the firewall are never revealed to the outside world, making intrusion extremely difficult. Indeed, local host IP addresses in this type of configuration are usually non-public addresses, making it impossible to route traffic to them from the Internet. Packets coming in from the Internet in response to requests from local hosts are addressed to dynamically allocated port numbers on the public side of the NAT router. These change rapidly making it difficult or impossible for an intruder to make assumptions about which port numbers to use.

If your requirements involve secure access to LAN based services from Internet based hosts, then you will need to determine the criteria to be used in deciding when a packet

originating from the Internet may be allowed into the LAN. The stricter the criteria, the more secure your network will be. Ideally you will know which public IP addresses on the Internet may originate inbound traffic. By limiting inbound traffic to packets originating from these hosts, you decrease the likelihood of hostile intrusion. You may also want to limit inbound traffic to certain protocol sets such as ftp or http. All of these techniques can be achieved with packet filtering on a NAT router. If you cannot know the IP addresses that may originate inbound traffic, and you cannot use protocol filtering then you will need more a more complex rule based model and this will involve a stateful multilayer inspection firewall.

3. Determine outbound access policy.

If your users only need access to the web, a proxy server may give a high level of security with access granted selectively to appropriate users. As mentioned, however, this type of firewall requires manual configuration of each web browser on each machine. Outbound protocol filtering can also be transparently achieved with packet filtering and no sacrifice in security. If you are using a NAT router with no inbound mapping of traffic originating from the Internet, then you may allow LAN users to freely access all services on the Internet with no security compromise. Naturally, the risk of employees behaving irresponsibly with email or with external hosts is a management issue and must be dealt with as such.

4. Determine if dial-in or dial-out access is required.

Dial-in requires a secure remote access PPP server that should be placed outside the firewall. If dial-out access is required by certain users, individual dial-out computers must be made secure in such a way that hostile access to the LAN through the dial-out connection becomes impossible. The surest way to do this is to physically isolate the computer from the LAN. Alternatively, personal firewall software may be used to isolate the LAN network interface from the remote access interface.

5. Decide whether to buy a complete firewall product, have one implemented by a systems integrator or implement one yourself.

Once the above questions have been answered, it may be decided whether to buy a complete firewall product or to configure one from multipurpose routing or proxy software. This decision will depend as much on the availability of in-house expertise as on the complexity of the need.

Is a firewall sufficient to secure my network or do I need anything else?

The firewall is an integral part of any security program, but it is not a security program in and of itself. Security involves data integrity, service or application integrity, data confidentiality and authentication. Firewalls only address the issues of data integrity, confidentiality and authentication of data that is behind the firewall. Any data that transits outside the firewall is subject to factors out of the control of the firewall. It is therefore necessary for an organization to have a well planned and strictly implemented security program that includes but is not limited to firewall protection.

What is IP spoofing?

Many firewalls examine the source IP addresses of packets to determine if they are legitimate. A firewall may be instructed to allow traffic through if it comes from a specific trusted host. A malicious cracker would then try to gain entry by "spoofing" the source IP address of packets sent to the firewall. If the firewall thought that the packets originated from a trusted host, it may let them through unless other criteria failed to be met.

An effective measure against IP spoofing is the use of a Virtual Private Network (VPN) protocol such as IPSec. This methodology involves encryption of the data in the packet as well as the source address. The VPN software or firmware decrypts the packet and the source address and performs a checksum.

Firewall related problems

Firewalls introduce problems of their own. Information security involves constraints, and users don't like this. It reminds them that Bad Things can and do happen. Firewalls restrict access to certain services. Firewalls can also constitute a traffic bottleneck.

Benefits of a firewall

Firewalls protect private local area networks from hostile intrusion from the Internet. Consequently, many LANs are now connected to the Internet where Internet connectivity would otherwise have been too great a risk. Firewalls allow network administrators to offer access to specific types of Internet services to selected LAN users.

DMZ

DMZ (demilitarized zone) is a computer host or small network inserted as a "neutral zone" between a company's private network and the outside public network. It prevents outside users from getting direct access to a server that has company data.

In a typical DMZ configuration for a small company, a separate computer (or host in network terms) receives requests from users within the private network for access to Web sites or other companies accessible on the public network. The DMZ host then initiates sessions for these requests on the public network. However, the DMZ host is not able to initiate a session back into the private network. It can only forward packets that have already been requested. Users of the public network outside the company can access only the DMZ host.

Security software supported by iYogi

Antivirus supported by iYogi

- Bit defender Antivirus 2009
- Bit defender Game safe
- Bitdefender internet security 2009
- Bitdefender total security 2009
- CA Internet Security Suite Plus 2010
- Gisoft AVG Antivirus

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- McAfee Antivirus
- NOD32 Antivirus
- Pc security shield Deluxe 2009
- Symantec Norton Antivirus
- VIPRE Antispyware + Antivirus pack
- Webroot Antivirus (with Antispyware)
- Webroot internet security essentials

Anti-spyware supported by iYogi

- Ad-aware
- CA Anti-Virus Plus Anti-Spyware 2010
- Malwarebytes' Anti-Malware
- Spybot Search & Destroy
- Stopzilla
- SuperAntiSpyware
- VIPRE Counterspy
- Webroot Spysweeper

Firewall supported by iYogi

- Sunbelt Personal Firewall

Pc Security Shield Deluxe 2010

Prerequisites before Installation

The following are the prerequisites before installing Shield Deluxe 2010 application:

- Administrative Rights to install the software.
- Create a System Restore Point.
- Please remove any previous Anti-Virus / Spyware software from your computer. Failure to do so will cause system instabilities.
- Sometimes, Anti-Virus products are hard to completely remove from the computer. It is recommended that you download and run a removal tool to ensure that all the remnants have been removed.
- Disable Windows Firewall
- You may begin the installation process by uploading directly from the CDROM or downloading the software directly from manufacturer website.
- To activate your software, please refer to your activation code that is provided via email or by the technician.

Installation Process

1. To install the Shield Deluxe 2010 application either you can use the installation disc or you can download the setup file from the manufacture's website.
2. Click "**Next**" button to continue.

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3. Click "**I Agree**" button to accept the license agreement.
4. Click "**Typical**" button to continue.
5. Wait till setup files are installed.
6. Click "**Finish**" button to complete the installation process.
7. Click "**Yes**" button to restart the computer.
8. Enter the license key and then click "**Register Now**" button.

Un-Installation Process

In order to remove the Shield Deluxe application, you can use any one of the following methods:

For XP

- Click Start> Programs> The Shield Deluxe 2010> Repair or Remove;
- Click Start> Control Panel> Add/Remove Programs> The Shield Deluxe 2010;

For Vista

- Click Start> All Programs> The Shield Deluxe 2010> Repair or Remove;
- Click Start> Control Panel> Programs and Features> The Shield Deluxe 2010;

Scanning Process

The scan process of the software involves scanning of all the files and folders, incoming and outgoing e-mail messages for all kinds of viruses and spyware. To start the scanning process, follow the below steps:

1. Click on the second tab '**Antivirus**', embedded at the left pane of the welcome screen.
2. Click on '**Scan Now**'
3. Wait for the scanning process to complete.

Update Process

You can enable or disable the automatic updates. It also allows you to perform manual updates. It shows the update status and the information when the last update was performed. Under Settings tab you can define the update settings for automatic and manual updates and you can also define proxy settings if you use the proxy server to go online. The following details will brief you about each tab:

- **Update:** You can check the update status, virus definitions, when was the last update performed. Click Update Now button to perform manual update.
- **Settings:** You can define the alternate locations to perform application and virus definitions updates. By default Shield Deluxe updates after every one hour, you can

change the settings according to your needs. Under Advance settings you can define the settings like- not to perform updates when scan is in progress or you are playing the games, wait for reboot etc. If you use proxy server to go online then click Proxy Settings button to define the settings.

How to Manually Remove a Virus

If you need to remove the virus manually then you need to perform the following steps:

Step1

1. Create the backup by creating a **System Restore Point**.
2. Check for unknown processes running in the **Task Manager**.
3. If so, then highlight it and then click **End Task**.
4. Check **Add/Remove Programs** list and uninstall any suspicious program.
5. Check the Startup folder in your profile directory \Start Menu\Programs\Startup.
6. Launch Windows Command Prompt
7. Look for the directory or folder where the virus resides, generally virus resides in Temp folder and System folder: CD C:\System
8. To show the hidden virus remove its attributes by using Attrib command: For Example Attrib -r -a -s -h ABC. Virus
9. Delete the virus: For Example Del ABC. Virus

Step2

1. Click **Start** and then click **Run**.
2. Type **Regedit** and then press **Enter**, it will open Registry Editor Window.
3. Highlight **My Computer** on the left Pane
4. Press **F3**, to open Find Dialog box, type the virus name and then press **Enter**
5. It will scan the registry hives and will highlight the searched entry.
6. **Delete** the highlighted registry entry.
7. **Repeat** the steps from No. 4 to 6, till it displays the message, no entry found.
8. You can also check the following Registry Entries, if Virus entries are added to it then Delete the infected keys:
 - a. HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Run
 - b. HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\RunOnce
 - c. HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\RunOnceEx
 - d. HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\RunServices
 - e. HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\RunServicesOnce
 - f. HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Run
 - f. HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Runonce

How to Manually Remove Spyware

You can remove a spyware using three methods, discussed underneath:

Remove Spyware Manually using Add or Remove Programs

1. Clicking the **"Start"** button that is located on the bottom left hand corner of the desktop.
2. From there, scroll the mouse up to the **"Control Panel"** button and double click this button.
3. The Control Panel window will open, and provide you with a variety of tasks you can perform.
4. Double click on **"Add or Remove Programs"**
5. The "Add or Remove Programs" window opens and provides you with a list of programs installed on your computer.
6. From here it is important to search for the spyware software that was installed onto your computer. Usually they will have names that are obviously associated with advertising such as Dealhelper or Bonzibuddy. You can highlight it by clicking it once.
7. Then click the **"Change or Remove"** button, and follow the instructions to remove the spyware from your computer.
8. Afterwards, it is recommended that the computer be rebooted again in normal mode.

Remove Spyware Manually Deleting Spyware Files

Another way to remove spyware manually from the computer is to research on the Internet the files that are specifically installed with a known spyware program.

From here it is just a matter of searching for these files, usually in your Windows "System" folder, and deleting them from there.

This method may cause error messages to appear when Microsoft Windows starts up, as Windows may attempt to run programs that no longer exist.

Remove Spyware Manually using HijackThis

It is also popular for many advanced users to download HijackThis and install it onto their computer.

HijackThis will return a list of all programs installed. You can also use it to manually remove registry entries installed by the spyware software.

Anti-virus reports a false positive

A false positive, also known as a false detection or false alarm, occurs when an antivirus program detects a known virus string in an uninfected file. The file, while not infected with an actual virus, does contain a string of characters that matches a string from an actual virus.

A false positive can also occur when a program performs an action, which appears to the antivirus program to be a virus-like activity.

Examples of such activity can include, but are not limited to, writing to the master boot record of the hard disk, making changes to a system file, or running a custom macro in a program such as Microsoft Word.

False detections, once confirmed, are usually corrected as soon as possible.

Troubleshooting Anti-virus false positive issues

Situation 1

You encounter a Blue screen or DCOM error, followed by shutdown messages after you update your McAfee's anti-virus to DAT file version 5958.

'The file C:WINDOWS\system32\svchost.exe contains the W32/Wecorl.a Virus.

Undetermined clean error, OAS denied access and continued.

Detected using Scan engine version 5400.1158 DAT version 5958.0000.'

Solution

McAfee has developed a SuperDAT remediation Tool to restore the svchost.exe file on affected systems.

What does the SuperDAT Remediation Tool do?

The tool suppresses the driver causing the false positive by applying an **Extra.dat** file in **c:\program files\commonfiles\mcafee\engine** folder. It then restores the svchost.exe by first looking in **%SYSTEM_DIR%\dllcache\svchost.exe**. If not present, it attempts a restore from the following:

- %WINDOWS%\servicepackfiles\i386\svchost.exe
- Quarantine.

After the tool has been run, restart your computer.

Troubleshooting Anti-virus Update Issues

The auto update feature of an anti-virus can stop due to below reasons:

- Installing a firewall
- Poor Speed of Internet Connection
- Elevated administrative privileges

Troubleshooting Anti-virus Auto update scenarios

Problem 1

Norton Antivirus Live Update Fails to Update with the following error:

'Error: "LU1814: LiveUpdate could not retrieve the update list'

Solution

Step 1: Temporarily disable your firewall (for a brief test)

1. **Start** the firewall program.

Most firewall programs display a small icon in the area near the clock. Try right-clicking or double-clicking the program icon.

2. Temporarily **disable** the firewall.

Read the program's help or contact the program publisher's support for instructions

3. **Start** your Norton program and **run** LiveUpdate
4. **Re-enable** the firewall. Do this now whether or not LiveUpdate ran successfully.
5. Do one of the following:
 - If LiveUpdate ran successfully when your firewall was disabled, go on to line 6.
 - If LiveUpdate did not run successfully when your firewall was disabled, go to Step 3.
6. Change the settings in the firewall program so that the program allows the following file to connect to the Internet:

C:\Program Files\Symantec\LiveUpdate\LuComServer*.exe

If you are not sure how to do this, contact the firewall program publisher. When you have changed the rule, run LiveUpdate again.

Step 2: Check settings in a Windows file

Windows Vista

1. Click the **Start** button, and then click **Control Panel**.
2. In the Control Panel window, click **Additional Options**.
3. Click **Symantec LiveUpdate**
4. In the User Account Control window, click **Continue**.
5. On the FTP tab, click **I want to use my Internet Options FTP settings**
6. On the HTTP tab, click **I want to use my Internet Options HTTP settings**.
7. On the ISP tab, click **Internet Options in the Control Panel**.
8. Click **Apply** > **OK**.

Windows XP

1. Click **Start > Control Panel**.
2. In the Control Panel window, double-click **Symantec LiveUpdate**.
If you do not see **Symantec LiveUpdate**, on the left side, first click **Switch to Classic View**.
3. On the FTP tab, click **I want to use my Internet FTP setting**
4. On the HTTP tab, click **I want to use my Internet HTTP settings**.
5. On the ISP tab, click **Internet Options in the Control Panel**.
6. Click **Apply > OK**.

Step 3: Download and install the latest version of LiveUpdate

Problem 2

McAfee antivirus won't auto update and returns the below error message:

'McAfee Common Framework returned error 80040154@1'

Solution

1. **Uninstall** the McAfee Virus scan from your PC.
2. Go to: Start --> **Run**, and type: **regedit**
3. Go to: HKEY_LOCAL_MACHINE\SOFTWARE and **delete** the registry folder named: **"Network Associates"**.
4. Close the **regedit** and **restart** the PC.
5. Install the **McAfee**, restart the PC again.

Problem 3

PC Security Shield Virus Update Fails with the error:

'Update Failed!'

Solution

Be sure that you are connected to the internet while starting your updates. If you are connected then it is likely that the system is simply busy from many people running updates at that moment.

Try a different server. Open The Shield Antivirus, go to Updates and then Configure and select one of the other 3 (B,C, or D) servers for updates.

Troubleshooting scenarios while Manual Update of Anti-virus software:

Situation 1

You encounter the below error message while trying to manually update AVG Antivirus 9.0:

'The update has failed due to a binary code'

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Solution

Uninstall and then re-install AVG Antivirus 9.0.

Situation 2

You get the below error message when you try to manually update your ZoneAlarm Security Suite:

'anti-virus update error'

Solution

Uninstall and then re-install ZoneAlarm Security Suite.

Situation 3

After hitting the 'Update' button of my anti-virus, I encounter the below error message:

'Anti-virus/Anti-spyware:

Error: Unable to install'

Cause: Few reasons responsible for the above error message can be a result of:

- Corrupted anti-virus settings
- Running multiple security tools
- Operating system damaged
- Malware malfunction

Resolution

Try a Database Reset using below steps:

1. Hold down the **Ctrl** and Shift keys together
2. **Right click** on the anti-virus icon near your clock in the system tray lower right corner
3. Choose '**Reset**' from the box that comes up
4. Choose Yes on the Reset Settings dialog box
5. When prompted, choose OK to restart your system
6. Follow the on screen configuration prompts after reboot

Situation 4

The below error message pops up when you try to manually update your AVG software:
'The connection with update server has failed'

Cause: Your Internet connection is not fully functional.

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Follow the below steps to rectify the above issue:

1. Open menu Start -> (Settings) -> Control Panel.
2. Double-click on **Network connections**.
3. Right-click on Local area connection and select **Repair**.
4. Try to update **AVG**.

Situation 5

While trying to update my AVG anti-virus, you might encounter the below error message:
'Invalid Update Control CTF File'

Cause: The above error message occurs due to temporary update files.

Solution

Follow the below steps to delete the temporary update files:

1. Double-click the AVG icon in the Notification area.
2. Click the Tools menu and click **Advanced Settings...**
3. Navigate to the **Manage** option in the Update branch.
(The **Manage** option is included in AVG version 8.0.233 and higher.)
4. Click the **Delete temporary update files** button.
5. Click **Yes** to confirm removal

Situation 6

When trying to update your McAfee VirusScan Enterprise 8.5i edition, you encounter an error message similar to following:

'Error occurred while loading COM componet:{9BE8D8A1-2DB5-4A29-A95F-50C8B27820DA}.'

2006-12-6 19:26:21 HEWEI\Administrator Error occurred while getting point product callback component interface.....'

Cause: Registry entry corruption.

Solution

Delete the below registry entry:

HKEY_LOCAL_MACHINE\SOFTWARE\Network Associates\ePolicy Orchestrator\Application Plugins\VIRUSCAN8000

Troubleshooting Antivirus Post Installation issues

Three common troubleshooting steps that resolve almost all antivirus issues are discussed below:

- **Update your antivirus software**

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Missing antivirus software updates could be the cause of your computer's problem. To make sure your antivirus is up to date, follow these steps:

1. Click to open Microsoft Security Center.
2. Click Malware protection.
3. If your software needs to be updated, click Update now.

If Windows can detect your antivirus software, it will be listed under Virus protection.

If your antivirus software is not displayed in Windows Security Center, go to the downloads section of your antivirus software provider's website. Find the update for your version of the software and your operating system, and then install it. For more information, check the Help for your antivirus software.

Most antivirus software updates are free, but some providers charge a small fee for the updates. If you're using an older version of the software, you might also have to pay to upgrade to a more recent version to continue to receive the updates.

- **Check for multiple antivirus programs running on your computer**

Running two antivirus software programs on your computer at the same time is not recommended because the two programs can interfere with each other. Even if you don't think your computer could be running two antivirus programs, antivirus software can sometimes come bundled with your computer and it might be running without your knowledge. To check if two antivirus programs are running, follow these steps:

1. Click the **Start** button, click **Control Panel**, click **System and Maintenance**, and then click **Administrative Tools**.
2. Double-click **Services**. If you are prompted for an administrator password or confirmation, type the password or provide confirmation.
3. Look at the list of services under the Name column. If you find two antivirus programs, right-click each service associated with one of the programs, and then click Stop. Note that there may be multiple services running for one antivirus program.

- **Contact the antivirus manufacturer**

If you've completed the previous steps, it is recommended to contact the antivirus manufacturer directly for additional support.

Troubleshooting Real-Time Problems

Situation 1

After you install CA anti-virus, the system starts running very slow.

Cause:

- The CA Anti-Virus real time monitor scans **an MSP file**

- Windows is trying to update / access the MSP file at the same time
- An activity with the MSP file causes step (a) to repeat
- An activity with the MSP file at step (a) causes step (b) to repeat.
- Steps (a) and (b) go in a loop.
- As computer's memory is consumed for this process; it blocks you from other activities.

Solution

Run [the CA Anti-Virus hot fix](#) that was released for this problem.

Situation 2

After installing McAfee antivirus 14, your MS Outlook 2007 does not open. Furthermore, you encounter the below error message each time you try to open your Outlook:

'The add-in "McAfee Anti-Spam" (c:\program~2\mcafee\msk\mskolplg.dll) cannot be loaded and has been disabled by Outlook. Please contact the Add-in manufacturer for an update. If not available, please uninstall the Add-in.'

Solution: Follow the below steps to resolve the above error:

1. Click **trust center**
2. from the left pane click **Add-ins**
3. Under manage (at the bottom) uncheck any addon for mcafee / do the same for Disabled item
4. **Close** outlook and open it back to apply the effect

Situation 3

While trying to fix issues using Symantec, you encounter the below error message:

"Error 1304: Error writing to file c:\programfiles\symantec antivirus\visurs defs/naveng.sys"

Solution

Follow the below steps to resolve the issue:

1. Open the system in **safe mode** and logon as the **administrator**.
2. **Uninstall** Symantec anti-virus using 'Add and Remove' option.
3. Now **reinstall** the latest version of the software.

Situation 4

When trying to open the AVG to scan the system, you encounter the below error message:

'C:\Program Files(x86)\AVG\AVG9\avgui.exe

The application has failed to start because its side-by-side configuration is incorrect. Please see the application event log or use the command-line sxstrace.exe tool for more detail.'

Solution

Uninstall AVG completely and reinstall it.

Situation 5

Your system shuts down several times in a day and generates the below error message:

'Problem caused by antivirus or firewall program. Firewall or antivirus program caused blue screen error.'

The problem has been occurring since you updated your CA anti-virus software.

Cause: The updates are incompatible with your system or not downloaded correctly.

Solution

Uninstall and then reinstall CA anti-virus software.

**Check your understanding**

1. You are trying to install Norton Antivirus application and you get the error related to Windows Installer. What will you do to fix the issue?
2. What will you do if already installed security software is not allowing to install the product thus causing a conflict or error during installation process?
3. What will you do if a user is not able to use internet after installing the security software?
4. Ravi is not able to boot the computer after installing the security software. What will you do to fix the issue?
5. Name and explain the different techniques used to detect the virus?
6. Security application "A" has quarantine feature but application "B" does not use this technology. Now which security application you will prefer to install in your computer. why?
7. What are the similarities between Antivirus and Antispyware programs?
8. What do you understand by OSI model?
9. Which layer of OSI works with NIC drivers?
10. Which layer of OSI works with TCP?
11. What do you understand by IP Spoofing?
12. What is the role of DMZ in firewall?
13. Name any 5 Antivirus applications supported by iYogi?
14. Name any 5 Antispyware applications supported by iYogi?
15. What are the prerequisites to install PC Security Deluxe 2010?
16. Write the steps to remove the virus manually?

17. What will you do if you encounter a Blue screen or DCOM error, followed by shutdown messages after you update your McAfee's anti-virus to DAT file version 5958?
18. What will you do if Norton Antivirus Live Update Fails to Update with the following error: "LU1814: Live Update could not retrieve the update list"?
19. You encounter the below error message while trying to manually update AVG Antivirus 9.0: "The update has failed due to a binary code". What will you do to fix the issue?
20. What will you do if after installing CA anti-virus, the system starts running very slow?
21. While trying to fix issues using Symantec, you encounter the below error message: "Error 1304: Error writing to file c:\programfiles\symantec antivirus\visurs defs\naveng.sys". What will you do to fix the issue?
22. Your system shuts down several times in a day and generates the below error message: "Problem caused by antivirus or firewall program. Firewall or antivirus program caused blue screen error". The problem has been occurring since you updated your CA antivirus software. What will you do to fix the issue?

Week 6:

Week Objectives:

By the end of this week, you will understand:

Day 1

iMantra CRM Tool

- Understanding L2 Call Flow
- Learning the usage to Cisco IP Phone
- Working with iMantra
 - How to access iMantra
 - Searching Customer Records
 - Verification & modification of Customer Info
 - Gathering Computer details
 - Viewing Customer Case History
 - Working with new case
 - Re-open a case
 - KB Usage
 - Generating Session ID
 - Using Tool Miner with Token Mechanism

Day 2

iMantra Continued

- Escalation Process
- Refund Process
- Callback Process
- Pitching for Upgrade/ Renewal

Day 3

Support Dock 4.0

- The importance of iYogi Support Dock
- Installation process & system requirements of Support Dock
- Various components of Support Dock
- Navigation of Support Dock Tools
- Customizing the Support Dock Settings
- The usage of Carbonite Online Backup Utility
- The importance & usage of Home Network Manager

Day 4

Support Dock Continued and NTR-Remote Application

- Usage of Digital Home
- The importance of PC Tune-Up Application
- Usage of Smart PC Care
- Usage of Smart PC Support
- Usage of NTR – Remote Support Tool

Day 5

Role Plays

- Implement call scripts and process knowledge.
- Practice how to handle a customer's call on the floor

Day 1: iMantra CRM Tool

Module Objectives:

By the end of this module, you will learn:

- Understanding L2 Call Flow
- Learning the usage to Cisco IP Phone
- Working with iMantra
 - How to access iMantra
 - Searching Customer Records
 - Verification & modification of Customer Info
 - Gathering Computer details
 - Viewing Customer Case History
 - Working with new case
 - Re-open a case
 - KB Usage
 - Generating Session ID
 - Using Tool Miner with Token Mechanism



Check Your Understanding

1. What are the pre-requisites for iMantra support?
2. What does the technician ask the customer after punching the account ID?
3. If the customer is online, he/she can be given both remote support and voice support. True/False
4. What should the agent do if the customer's account ID and customer's ID is not available?
5. Describe the login procedure for iMantra (through Cisco phones).
6. What all CTI Options are available to login in Cisco Phones?
7. Describe the account types which are there under the Subscription option in iMantra application.
8. Describe the Customer Info feature under Advanced Features in iMantra.
9. How will you view a customer's case history? What all information about the customer is available in case history?
10. What is CSAT? What is it used for?
11. What all information is sent in the welcome email when a new customer registers for iyogi services?
12. What is the procedure to verify a customer's address?
13. What are the two methods to modify a customer's details?
14. What is the difference between a customer's subscription ID and Computer ID? Can one customer have more than one subscription ID or computer ID? Explain with an example.
15. The device information page is categorized into five sections. Explain each of them.
16. Under what circumstances can a case be reopened?
17. Explain the 'Action Plan' menu under the 'Link to KB' in the iMantra application.
18. What are the scenarios in which a case can be labeled as 'Transfer Case'?
19. What all can one search with the KB tool in iMantra CRM?
20. How will you generate session IDs using iMantra?

21. What is Tool Miner? What is it used for?
22. When is it necessary to reboot the system while troubleshooting?
23. What is Windows update troubleshooter? How do you use it?
24. When is the CA antivirus removal tool required?
25. What all tasks can you execute with the IE optimization tab under Internet optimization?
26. What are the benefits of Token Mechanism?
27. What is the Process Analyzer utility used for?

Day 2: iMantra Continued

Module Objectives:

By the end of this module, you will learn:

- Escalation Process
- Refund Process
- Callback Process
- Pitching for Upgrade/ Renewal



Check Your Understanding

1. What do you understand by case escalation? Under what circumstances a case can be escalated?
2. Describe the steps to book an escalation slot in iMantra.
3. What is an escalation mail? What all information does it contain?
4. Mention the ways by which a customer can pay his/her subscription fee.
5. What is a refund? What are its business impacts?
6. How will you raise a refund request and check refund status in iMantra?
7. Consider a customer who calls an L2 agent and asks for a refund. Describe the flow in which his/her request will be proceeded in iYogi.
8. What is a chargeback? What are its possible reasons?
9. Describe the chargeback cycle.
10. Mention few methods of reducing the refunds and chargeback.
11. What are the key responsibilities of customer's service team?
12. Under which conditions a callback can be committed to the customer calling iYogi?
13. How will you pitch a customer in the following conditions:
 - Customer is new to iYogi
 - Customer's account is going to expire in next 90 days
14. How will you upgrade or renew an account in iMantra?
15. How will you get Support Dock access code?
16. Mention the procedure of getting subscription fee through Web Pay?
17. How will you register a new customer in iMantra?
18. How will you add another computer to the existing account of a customer in iMantra?
19. How will you transfer a call?
20. How does the call back team process a callback?

Day 3: Support Dock 4.0

Module Objectives:

By the end of this module, you will learn:

- The importance of iYogi Support Dock
- Installation process & system requirements of Support Dock
- Various components of Support Dock
- Navigation of Support Dock Tools
- Customizing the Support Dock Settings
- The usage of Carbonite Online Backup Utility
- The importance & usage of Home Network Manager



Check Your Understanding

1. What are the minimum system requirements to install Support Dock?
2. Explain the steps to download and install Support Dock?
3. Explain the steps to uninstall Support Dock.
4. How can you activate Support Dock?
5. Explain any five menu options that get displayed when you right-click the SD icon?
6. Explain the steps to add and remove item from SD.
7. Explain the steps to update Support Dock components settings.
8. Explain the options available in General Tab of SD preferences.
9. Which SD Preferences tab allows the user to access and customize the SD components?
10. Which SD Preferences tab allows the user to fetch their user name and password?
11. What are the tasks that a user can perform under Subscription tab of My iYogi?
12. What is the functionality of "Live Help" feature?
13. What is the functionality of "Push to Talk" feature?
14. What are the tasks that a user can perform by using "Smart PC Care"?
15. Explain the two segments available under PC Support feature?
16. Which feature under "Data Security & Backup" prevents the user from identity theft?
17. Explain the tasks that can be performed using below PC Maintenance options:
 - Game Optimizer
 - Disk Explorer
 - PC Fixer
 - Uninstall Manager
18. Explain the features of Home Network Manager.
19. Explain the four modes of power saving under Green PC option.

20. Explain the steps to download and install Carbonite.
21. Explain both the methods to uninstall Carbonite.
22. Explain any two methods to upgrade Carbonite.
23. What are the minimum system requirements to install Home Network Manager?
24. Explain the steps to install and activate Home Network Manager.

Day 4: Support Dock Continued and NTR-Remote Application

Module Objectives:

By the end of this module, you will learn:

- Usage of Digital Home
- The importance of PC Tune-Up Application
- Usage of Smart PC Care
- Usage of Smart PC Support
- Usage of NTR – Remote Support Tool



Check Your Understanding

1. What all can the customer do with the Digital Home feature in Support Dock?
2. What are the system requirements to install PC Tune-up?
3. What are the functionalities of Smart PC Care-Home?
4. What steps would you follow to launch Smart PC Care-custom scan?
5. Explain the functionality of Registry Cleaner under Smart PC Care-System Cleaner.
6. What is the difference between Registry Optimizer and Memory Optimizer under Smart PC Care-System Optimizers?
7. Describe the functionality of Settings tab under Smart PC Care-Protection and Update (Driver Updater).
8. What are the following tabs used for (under Smart PC Care-Protection and Update (System Protector))?
 - Scan tab
 - Quarantine tab
 - Shield tab
 - Settings tab
9. What is the functionality of Smart PC Support-Privacy Protector?
10. What is the difference between the functionalities of Restore tab and Import Backup tab under Smart PC Support-Backup & Restore?
11. What is the function of System and Security Advisor in Smart PC Support?
12. Describe the Secure Delete option in Smart PC Support.
13. What all does the Game Optimizer do to improve the experience of playing games?
14. What all can you recover using the 'Undelete' option in Smart PC Support?
15. Explain the tools provided in the Disk Explorer window under Smart PC Support.
16. What option in Smart PC Support can be used to manage the startup items during boot process? What all can you manage with the option?
17. What are the minimum system requirements to install NTR application at the customer's end?

18. Briefly describe the components of Customer Console under NTR option.
19. Explain the process of taking Remote Session of customer's computer. Explain the process of transferring it ahead.
20. How do you perform Remote Diagnostics?
21. What is the Iyogi policy for taking Remote Session?